

INTERNATIONAL

# [Realtà MAPEI]

ISSUE 63



Year XVIII - No. 63 - June 2017

63



# OUR AMERICAN DREAM

Dear readers,

in the year in which we are celebrating the 80<sup>th</sup> anniversary of the founding of the Mapei Group, this issue of *Realtà Mapei International* focuses on the results the company has achieved in North America and the new targets we hope to reach in this important geographical area of the world.

The North American market has been extremely successful for us over the last few years and is continuing to grow in our sector. In the medium-long term we plan to keep on investing in this geographical area, where we are such an important player, in accordance with Mapei Group's global growth strategy.

We plan to do so partly because this is where Mapei's internationalisation process first began. Together with Research & Development and the constant quest for innovation, internationalisation has allowed the company to grow successfully around the world and become a benchmark in the realm of chemical products for the building industry.

Briefly retracing the initial steps in Mapei's successful venture into the New World is not just a pleasant reminder of what we have achieved, but also proof that dreams really can come true under certain circumstances.

Mapei's internationalisation first began on American soil and started under the lucky star of sports, indeed under the auspicious multicoloured Olympic rings.

"Our American dream" began back in 1976 at the Montreal Olympic Games, which Mapei was involved in with its products for laying the Olympic track. This was my first exciting direct contact with the American market.

I went to Montreal in person to watch the installation of the track and immediately realised the potential of the Canadian and United States market.

Ideas immediately turned into concrete facts with an initial investment in Canada to construct a manufacturing plant that opened in 1978, soon followed by factories in the United States: in Tempe, Arizona, in 1984 and in Chicago in 1985.

A relatively quiet start that soon produced a barrage of great results involving more and more new investments and acquisitions.

A success story that is continuing. Nowadays, the Mapei Group can boast a multifaceted organisation of 19 factories in North America: 10 in the USA, 5 for its associate company Polyglass, 4 factories in Canada and 1 in Puerto Rico.

This fabulous process of growth has involved all Mapei's different structures, focusing on the Group's competitiveness in its familiar realms of growth: research, innovation and, of course, internationalisation.

Now, forty years later, we are market leader in our specialties employing over 2000 staff and growing exponentially over recent times at a rate of over 20%. The American market is the biggest in the world and we are continuing to invest in it to meet the constantly growing demand.

Mapei is totally committed to making the company's powerful presence felt on the most competitive market in the world.

As well as investing in manufacturing plants, we continue to be involved in all kinds of other side projects, which are extremely important to us, to make Mapei Americas increasingly competitive. I am talking about funds allocated for Research & Development, marketing, education and strengthening our sales network.

It is worth remembering that the totality of our operations in North America is one third of Mapei's overall business around the world and, as I see it, the decision to focus on these markets is a winning strategy and will continue to be so for many years to come, since we are operating within the world's most powerful and forceful economy.

A challenging market on which highly motivated Mapei women and men are striving to promote the very best their fields of expertise have to offer.

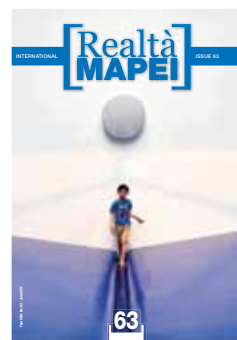
A special thanks to them and to everybody who has contributed to this growth in accordance with the Group's corporate philosophy, which is to be global and, at the same time, close to local requirements in every country in which we do business. Their courage, hard work and determination have made, and continue to make, our American Dream come true.



**GIORGIO SQUINZI.**  
Managing Director of Mapei SpA

*Giorgio Squinzi*

**COVER STORY**  
The Serbian Pavilion at the 2016 Venice Biennale in Italy. Intense blue and a steep, curved surface: the challenge facing three young Serbian architects and Mapei resin coating solutions.



# SUMMARY

**EDITOR IN CHIEF**  
Adriana Spazzoli

**EDITORIAL CONTRIBUTORS AND ENGLISH TRANSLATION**  
Martyn Anderson, Nicholas John Bartram, Federica Pozzi, Tiziano Tiziani, Federica Tomasi, Alessandro Brambilla, Francesca Molteni, Metella Iaconello

**PRODUCTION AND EDITORIAL COORDINATOR**  
Francesca Molteni

**PHOTOGRAPHIC RESEARCH**  
Davide Acampora

**GRAPHIC DESIGNER**  
Studio Magazine - Milan (Italy)

**PRINTED BY**  
Rotolito Lombarda - Pioltello (Italy)

**PUBLISHED BY**  
Mapei SpA  
Via Cafiero, 22 - 20158 Milan (Italy)  
Tel. +39/02/376731  
Fax +39/02/37673214  
website = [www.mapei.com](http://www.mapei.com)  
E-mail = [mapei@mapei.it](mailto:mapei@mapei.it)

**PRESIDENT & CEO**  
Giorgio Squinzi

**OPERATIONAL MARKETING DIRECTOR**  
Adriana Spazzoli

**REALTÀ MAPEI**  
Registered by the Tribunal of Milan n. 363/20.5.1991  
*Realta Mapei International* is published 4 times per year

**CREDITS**  
Mapei Corporation, Donato Grosser and Associates, Polyglass USA, Melissa Mulligans, Polyglass SpA, C-ADD Division, Mapei GmbH, Mapei Suisse SA, Mapei AS, Mapei SRB, Massimo Casadei, Mapei U.K. Ltd, Mapei Construction Chemicals LLC, Renzo Piano Building Workshop, Emergency, Reputation Institute, UCI, Olga Ambrosio, Alec Invernizzi, Master Group, Centro Mapei Sport, Sassuolo Calcio



Articles featured in this magazine may be republished in whole or in part after obtaining the editor's permission. In any case the source must be mentioned.



**MIX**  
Paper from responsible sources  
FSC® C005461

## EDITORIAL

Inside front cover Our American Dream

## SPECIAL FEATURE AMERICAS

- 2 The World of Mapei
- 4 Mapei in North America: hard work and determination
- 6 Good news from North America
- 8 The building and ceramics tiles market in America
- 10 World of Concrete
- 11 TISE West
- 12 Coverings
- 14 The winners of the 2017 Ceramics of Italy Tile Competition
- 16 Seventh Midtown Condominium in Atlanta
- 18 Girdwood Elementary School in Alaska
- 20 Polyglass USA
- 22 Roofing technology

## TEAMWORK

- 26 Mapei Cement Additives promote sustainability

## TRADE FAIRS

- 30 Mapei Spa at MADE EXPO 2017
- 40 Polyglass Spa at MADE EXPO 2017

## NEWS

- 36 Radon prevention and protection
- 60 Soundproofing and living comfort
- 68 Mapei with Renzo Piano and Emergency in Uganda
- 80 Reputation Awards 2017

## PROJECTS

- 42 Industrial Factory in Pistoia with an innovative roofing
- 44 The complete renovation of Piazza Venezia in Rome
- 48 Seregno's new Auditorium and Council Chamber
- 54 Cologne's Rewe Market
- 56 The Serbian Pavilion at the 2016 Venice Biennale

## THE INTERVIEW

- 62 Acoustic comfort in the hotels sector

## THE EXPERT'S OPINION

- 63 Soundproofing - legal requirements  
Inside back cover Which adhesive should I use?

## SPORT DIVISION

- 66 Mapei United Arab Emirates held its 1<sup>st</sup> sports tournaments
- 76 Sassuolo, a season to be proud of
- 79 Sassuolo ladies are in serie A!

## ART AND CULTURE

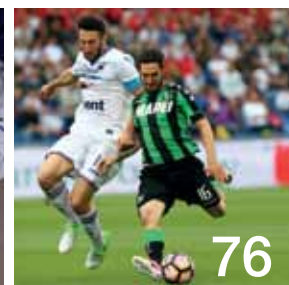
- 72 Art Déco – Its roaring years in Italy

## IN THE SPOTLIGHT

Set the mood p.15, Adeso p.25, Radon - the solutions proposed by Mapei p.38, Mapeplan T AF 15 p.43, Mapestone System p.47, Ultrabond Eco S940 1K p.52, Ultrabond line p.53, Primer SN p.55, Mapefloor Comfort System p.59, Mapei: a solution for every problem p.64



For further information see [www.mapei.com](http://www.mapei.com) and [www.mapei.it](http://www.mapei.it)





# THE WORLD OF MAPEI



**Founded in 1937, this year Mapei Group is celebrating an important milestone: 80 years of professionalism and expertise in the construction world.**

Made up of **81** subsidiary companies and **73** production facilities operating in all five continents, it is one of the most important manufacturers in the world today for adhesives and complementary products for installing all types of floor and wall coverings and is specialised in other chemical products, such as waterproofing products, special mortars, admixtures for concrete, products for restoring historical buildings and protective wall finishes.

Since the 1980s **Mapei** has been operating on the **USA market**, which represents a strategic part of the Group's international trade.

Thanks to their ongoing expansion process,

currently

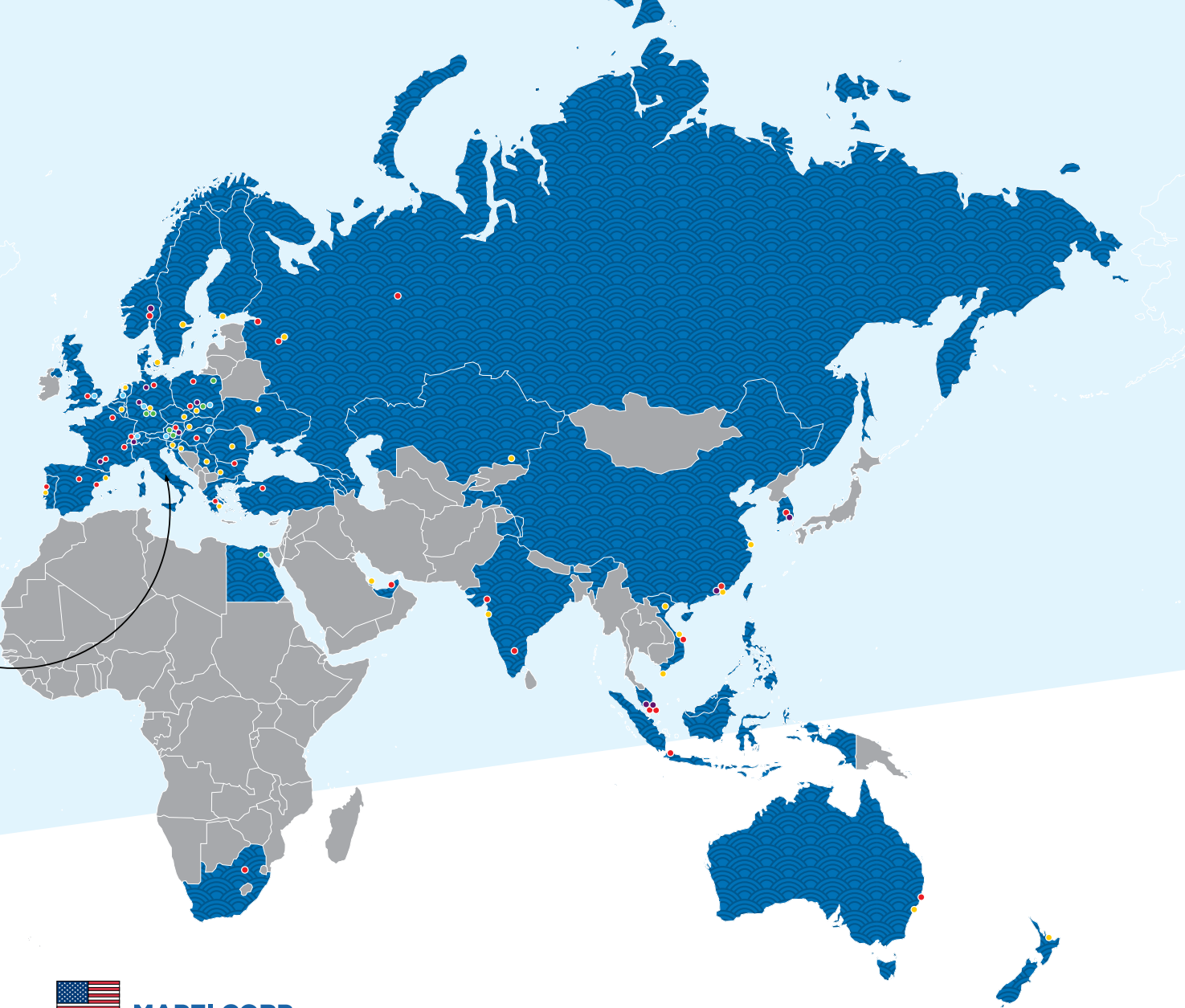
operating in

the **United States** there are:

- **Mapei Corp.** with **10 production facilities**, **2 R&D laboratories** and **1 division - North American Adhesives** - dedicated to tiling adhesives and **GRT**, with **4 production facilities** manufacturing admixtures for concrete;
- **Polyglass USA**, which manufactures bitumen membranes and special paints, with **5 production facilities** and **1 R&D laboratory**;
- **Vinavil Americas Corporation**, which manufactures Vinyl Acetate resins, with 1 production facility and 1 R&D laboratory.

**80**  
*years*  
**1937-2017**





## MAPEI CORP.



U.S. Headquarters Deerfield Beach (FL)



Logan Township (NJ)



South River (NJ)



San Bernardino (CA)



Fort Lauderdale (FL)



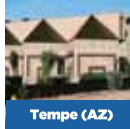
Garland (TX)



West Chicago (IL)



Fredericksburg (VA)



Tempe (AZ)



Dalton (GA)



Dalton (GA)



## GRT



Eagan (MN)



Logan Township (NJ)



Garland (TX)



Madison (IL)



## POLYGLASS Inc.



U.S. Headquarters Deerfield Beach (FL)



Hazleton (PA)



Waco (TX)



Winterhaven (FL)



Ferrelly (NV)



Tempe (AZ)



www.mapei.com  
**MAPEI**  
ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING





INTERVIEW WITH  
NICK DI TEMPORA,  
HONORARY CHAIRMAN  
OF THE BOARD OF  
MAPEI CORP.

# MAPEI IN NORTH AMERICA: HARD WORK AND DETERMINATION



**This year Mapei is celebrating 80 years in business. Mapei arrived in the North American market in the 1970s, first opening up in Canada and then in the United States. You were part of this business venture. What was it like?**

Mapei's arrival on the North American market was a real adventure, an exciting discovery of a new world that was a far cry from my own life and my previous experiences. Until I began working with Giorgio Squinzi I had never even wondered how you install tiles! They were just there and that was that! This business venture gave me the chance to en-

ter unknown territory and I had to adapt, change my perspective, study all the products and begin from scratch, because nothing I had done in the past is comparable to what I did, experienced and learned at Mapei.

**What were the most important factors in Mapei Inc.'s growth in Canada?**

The most important factor in Mapei's growth and expansion was most definitely... all the Italians in the country. There is a large Italian community in Canada, which is extremely prosperous, thanks to its proud determination to

show people what they can do. Lots of Italians found jobs in the building industry in Canada. They had to overcome the mistrust of the people who welcomed them but saw them as different and strange. They and their families went through some really hard times, but they managed to integrate perfectly. These people represent the very best of Italy: they are hard-working and know that you have to be willing to roll up your sleeves and make real sacrifices if you want to overcome people's prejudices. Giorgio Squinzi showed this same spirit of adventure and tenacity when he was invited over to Canada in 1976



by a distributor for the Montréal Olympics. Together we have always kept the promises we made to our customers: to provide the best product possible at a competitive price and also the best service possible. In a nutshell, the very best of Italian skill and expertise. The respect and trust of our customers were a direct consequence of our constant effort and determination to improve.

**You are Italo-Canadian: was it a strategic decision to choose Québec as a starting point rather than other regions of the country?**

There was no strategy and no planning in the decision to choose Québec. It just seemed to be the right launchpad for making our dream take off and fly high: determination, hard work and confidence in our own ability.

**For years, you were in charge of the Mapei Corp. in the United States. What are the most important factors in the associate company's growth that is still continuing today?**

Mapei is growing all the time and that is the way it should be, because our standards are extremely high and our hard work is the best guarantee we can offer our customers. Mapei is not just a business, it is a philosophy of life that encompasses everything that once made Italy's history, culture and genius so incomparable.

I know I am repeating myself when I say that excellence can only be attained by making sacrifices, working hard, gaining people's trust and showing bravery and plenty of heart. That is why Mapei has always been seriously involved in social projects. All this is part of a world vision that involves investment in the community. Growing also means helping others grow, drawing on your own resources for

## ➤ Mapei's arrival in the North-American market has been an exciting adventure

the common good. Solidarity is a key value that is only too familiar to Italian immigrants. It is based in their deep sense of belonging to their own community and the Italian spirit.

Expanding the United States was more difficult than in Canada. Mapei had to make a name for itself in a much bigger market. In the beginning, we only operated in Arizona, but then things changed when we took over L&M, North American Adhesives and the West Chicago plant in 1996. Our strategy was to grow through acquisition. Results prove that we took the right approach.

**Your role is different nowadays: you are now the honorary chairman of Mapei Corp. and also in charge of real estate development. Why is this such a strategic business?**

Our strategy was to grow organically through additional sales and to also grow by acquiring existing manufacturing facilities; so my aim was, first and foremost, to find good acquisitions. Real estate is simply a consequence of our growth over the few years.

**For some years now you have been in charge of Polyglass USA: what do you think of Polyglass's operations in North America?**

Polyglass is another successful Mapei project that is part of our growth strategy through acquisitions. Initial investment in modernising the plants, adapting the sales strategies and developing new products provided the input for interesting structural growth, which was also helped along by excellent management work.

Another challenge successfully overcome and further visible proof of a winning approach in North America.

**What were and what are the factors that contributed - and still**



**ABOVE.** The official opening of the new manufacturing plant in Laval, Canada, in 1984: Veronica Squinzi, as a young child, helping her grandfather Rodolfo, the founder of Mapei.

**BELOW.** Giorgio Squinzi and Nick Di Tempora looking for the best location in Phoenix, Arizona, for the first factory set up in the United States in 1983.

**BOTTOM.** From left, the headquarters of Mapei Corp. in Deerfield Beach (Florida) and the factory in Laval (Canada).

**contribute - to Polyglass's growth in the United States?**

Polyglass's constant and, hopefully, unstoppable growth is something Mapei is extremely proud of. The quality of the products and sales/marketing strategies are, and remain, a magical, winning formula.

Mapei means integration, cooperation and synergic growth: the team is the same and if one person wins, we all win. We must constantly strive to do better. If we want to call this being competitive, then healthy competition is welcome. Italian people living outside their home country have always had to work doubly hard to prove just half of what they are capable of, but we are always focused on achieving excellence: that is our ultimate target.

It is an immense pleasure to work with both Polyglass and Mapei and achieve increasingly rewarding results.







# GOOD NEWS FROM NORTH AMERICA

## ECONOMIC TRENDS AND MAPEI GROWTH IN NORTH AMERICA

The GDP, an indicator of the size of a country's economy, is growing in North America. Projections by the Federal Reserve Board and Federal Reserve Bank presidents in March 2017 indicate that the U.S. GDP is growing at a rate of 2.1% and will continue to do so throughout 2017 and into 2018.<sup>1</sup>

The Canadian GDP is expected to grow by 1.9% during this same period.<sup>2</sup>

The construction industry in the U.S. is also showing solid growth, with an overall forecasted increase of 6.5% for 2017 vs. 2016. The Non-Residential Construction Forecast by the Associated Builders and Contractors (ABC) calls



LUIGI DI GESO, President and CEO of Mapei Corp.

for a 5.3% increase in total non-residential construction in 2017 (Table 1), while the residential market shows a 6.4% rise in new home construction spending and a 9.6% increase in home



improvement spending (Table 2). Construction prospects in Canada have risen, too. Total construction spending for all sectors is forecast to increase by 2.4% in 2017. New residential construction is expected to grow 2.2% Canada-wide, while non-residential construction (commercial, industrial and institutional) may increase by as much as 4.5%.

### MAPEI IS GROWING FASTER THAN THE ECONOMY

Mapei North America's growth rate for the first quarter of 2017 is 14% above the same period in 2016. "This is resoundingly positive news due to the fact that 2016 itself was a banner year for revenues in this subsidiary," said Luigi Di Geso, President and CEO of Mapei North America.

"I feel strongly that the efforts we have made over the past several years to add new sales representatives, new technical representatives and new architectural representatives have enabled us to reach and service our customers better than we ever had in the past. And, our innovative products continue to meet the highest technological standards as we seek to provide solutions for our customers' needs today and in the future."

From this leadership stance, Mapei has moved steadily forward, introducing new categories of products from Mapei Group into the North American market, as well as expanding current operations and acquiring additional manufacturing capacity.

The acquisition of GRT (General Resource Technology) in 2014 (see *Realtà*

Table 1. U.S. Non-residential Construction Forecast for 2017-2018

Spending Put-In-Place (billions of \$)	Estimated	Forecast	
	\$ in billions	% Change	
	2016	2017	2018
Non-residential Total	407.5	5.3	4.1
Commercial Total	168.2	5.8	3.4
Office	68.1	6.5	4.3
Retail & Other Commercial	73.1	5.6	3.1
Hotel	27.0	4.5	2.2
Industrial Total	75.1	6.6	3.4
Institutional Total	164.2	4.3	5.0
Health	41.3	2.8	3.3
Education	89.8	5.2	5.5
Religious	3.7	1.8	2.5
Public Safety	8.0	-3.0	4.0
Amusement & Recreation	21.4	6.7	6.9

Forecast: American Institute of Architects, January 25, 2017  
Data source: American Builders & Contractors December 2016





**Table 2.** February 2017 Construction Spending in the U.S.

February 2017 Construction Spending				
	Total Private Residential (\$ in billions)	Single Family (\$ in billions)	Multi-Family (\$ in billions)	Home Improvement Spending
<b>February</b>	484.7	253.8	63.5	159.1
<b>January</b>	476.1	251.1	62.2	162.8
<b>2016</b>	455.7	248.1	58.3	149.2
<b>M/M change</b>	1.8%	1.2%	2.0%	2.7%
<b>Y/Y change</b>	6.4%	3.4%	10.6%	9.6%

Forecast: The Virginia Tech – U.S. Forest Service February 2017 Housing Commentary: Section I  
Data source: <http://www.census.gov/construction/c30/pdf/privsa.pdf>; 4/3/17

*Mapei International* no. 48 and no. 58) helped anchor Mapei in North America as a provider of concrete admixtures. “GRT has helped increase revenues with its own products as well as those from Mapei. Another strong benefit has been that GRT has also elevated Mapei to a new level of visibility as a player in the construction business in the U.S. and Canada,” Di Geso said. Below-grade waterproofing systems were introduced into American markets in 2016 and are now producing results. The products in this category are manufactured from raw materials supplied in part by sister company Polyglass USA. Mapei North America is going deeper into construction with the Underground Technology Team (UTT) and its products for underground construction work. Building on Mapei’s global achievements with this technology, the UTT team is already experiencing successes in this sector, which encompasses tunnels, mines and other underground construction.

Mapei is also adding products to its portfolio that have been certified for the marine industry. The portfolio includes products for surface preparation, waterproofing, flooring installation, sound reduction and resin deck coatings. A complete line of MAPEFLOOR CPU is being introduced into North America, this year. This family of polyurethane-cement mortars has been designed to provide high resistance to chemicals, making the products ideal for use in industrial applications in the food and beverage industry. “Mapei North America has recently ramped up operations in its manufacturing facilities to support the increased production fueled by the escalation in sales,” Di Geso stated. Additions include new powder plants in Dalton, Georgia (March 2017), and Logan Township, New Jersey (April 2017). An extensive enlargement of the plant in Chicago will be completed by the fourth quarter of this year (October 2017). Expansions are underway to double pro-

**ABOVE.** Mapei Americas production facilities in Fredericksburg, Virginia (LEFT) and in San Bernardino, California (RIGHT). In both plants new production lines underway.

duction capacity with new production lines in Fredericksburg, Virginia (September 2017), and San Bernardino, California (June 2018).

“As operations expand in the Americas, so does the need for talented, experienced personnel. Since January 1, 70 new employees have joined Mapei North America,” commented Di Geso. Reiterating the important role played by the sales, technical and architectural representatives, Di Geso concluded, “All the new products and technologies for Mapei North America are carried to our customers by our well-trained and dedicated sales teams. All the sales representatives came together at the beginning of 2017 in an intensely focused Mapei North America sales meeting. During the training, motivational speeches and networking between representatives from different regions, the entire sales force re-committed to the goal of generating \$1 billion in annual revenues for Mapei by the end of 2020.” The products, processes and people of Mapei North America are going strong as we celebrate the 80<sup>th</sup> anniversary of Mapei. As Mapei Group CEO Dr. Giorgio Squinzi, an avid cycling enthusiast, says, “We keep on pedaling!”

<sup>1</sup>U.S. Economic Indicators - Source: <https://www.federalreserve.gov/monetarypolicy/files/fomcprojtbl20170315.pdf>; 3/16/17

<sup>2</sup>Economic Outlook – National Bank of Canada Economics and Strategy Group, 12/31/16



# THE BUILDING AND CERAMICS TILES MARKET IN AMERICA

RISES EXPECTED IN EVERY MARKET SECTOR IN 2017

The trend in the ceramic tiles market in the United States is closely related to the trend in new housing constructions, which accounted for approximately 30% of tiles sales into 2016. When building work was at its peak in 2006 just before the recession, this percentage had risen to almost 40%. The correlation is shown in graph 1. Whereas the number of new constructions has fallen by almost 70%, the drop in tiles sales has been less drastic due to the fact that other industries using tiles, such as housing renovations and constructions and non-residential redevelopments, has dropped less markedly.

The importance of the renovations/re-developments sector is shown in graph 2, which highlights how the recession has impacted less seriously on renovations compared to the industry for new constructions. The renovations sector is mainly based on spending by people renovating properties (both residential and non-residential) to keep them in good repair, as well as spending by people buying old houses and adapt them to their own tastes.

Spending on renovations is expected to increase throughout 2017 due to the fact that sales of existing houses have reached an annual figure of 5.71 million

units and in March 2017 they were up 5.9% compared to the same period in 2016.

According to the Harvard Center For Housing Studies, spending on renovations will increase at a rate of approximately 6% in 2017.

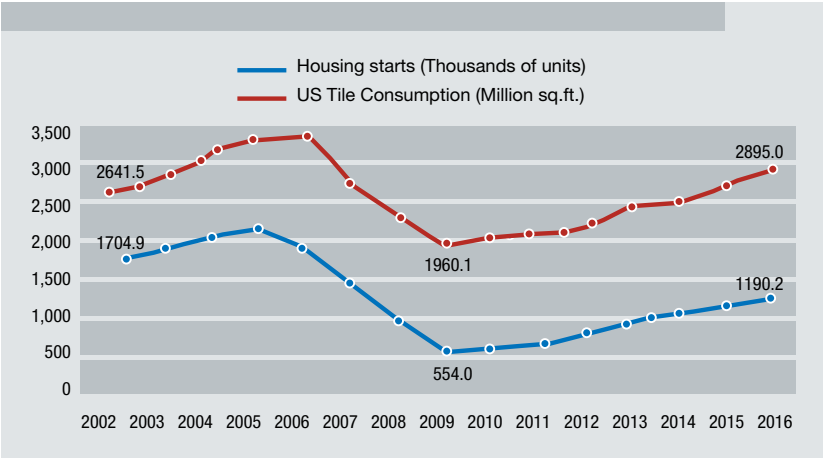
The importance of the non-residential building sector has returned to the levels it had reached before the recession. A factor negatively influencing this market segment is the decrease in the number of department stores due to the sudden boom in the online sales industry. Chains of department stores like Macy's, Sears, JC Penney and others are reducing the number of their sales outlets, most of which are now located in suburban Malls. The closure of hundreds of these department stores is freeing up huge empty spaces and discouraging the construction of new retail facilities.

## TILES SALES IN THE UNITED STATES

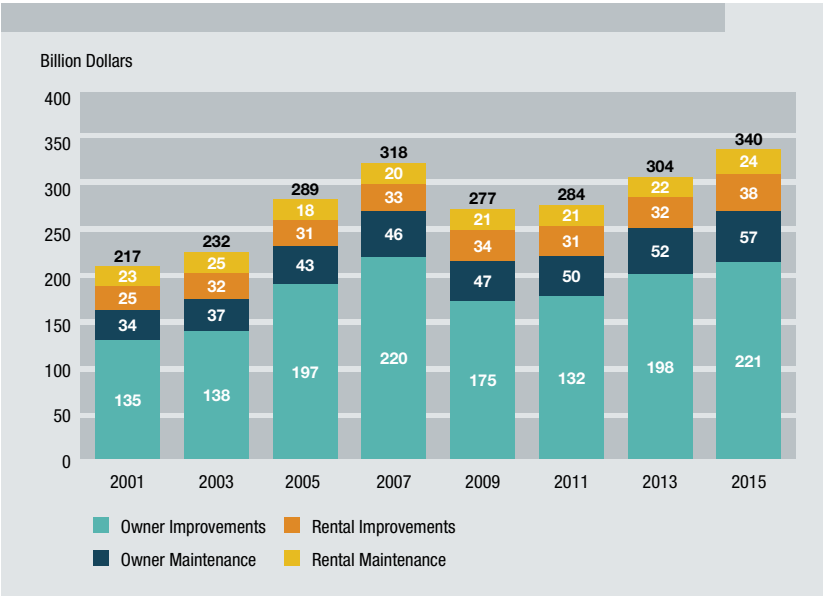
The trend in tiles sales in 2016 has been positive with a further increase of 5.8% following a rise of 9.9% the previous year. Nevertheless, it is worth remembering that these figures and percentages are based on "apparent consumption" or, in other words, tiles entering distri-

bution channels, like sales by American manufacturers to their customers and tiles imported by distributors and cleared through customs. Not all tiles sold wholesale are actually bought by consumers and those left in retailers' or distributors' warehouses also count as "apparent consumption". Figures about "apparent consumption" are published in the United States because there are no accurate estimates of real sales. In 2016, ceramic tiles sales in the United States were 269 million m<sup>2</sup>. Imports of 185 million m<sup>2</sup> accounted for almost 69% of the total, while deliveries by American manufacturers were just 31%.

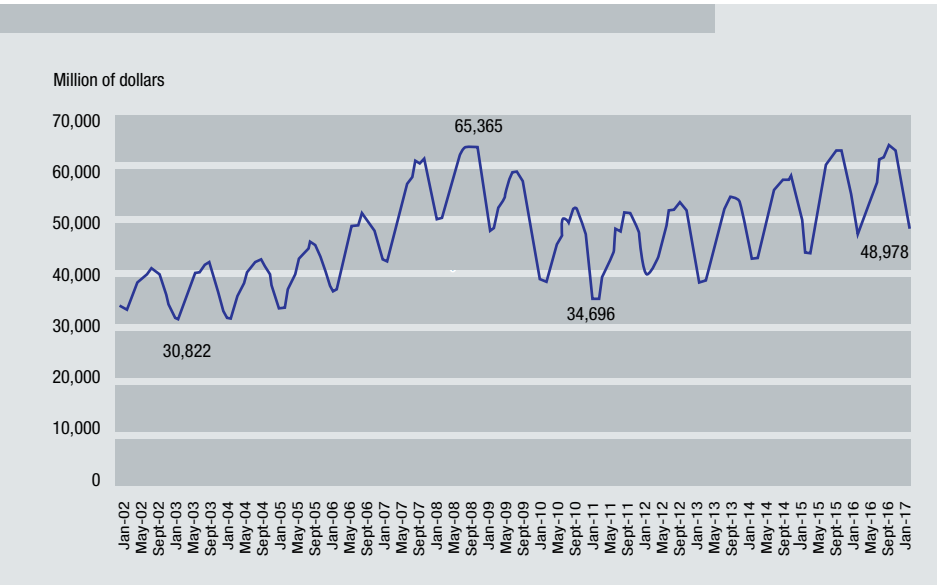
All leading local tiles manufacturers have seen their sales rise compared to 2015. According to what was published in the May 2017 issue of the magazine Floor Focus, Daltile recorded sales of \$1.410 million compared to \$1.133 million in 2015, a figure due to the acquisition of Marazzi's three American factories and the opening of a new plant. Crossville recorded sales of \$158 million (\$150 million in 2015). Sales also increased for Florida Tile belonging to the Panaria Group (\$128 million in 2016 and \$118 in 2015), Stonepeak belonging to the Iris Group (\$126 million in 2016 and \$120 million in 2015) and Florim USA (\$113 million in 2016 and \$105 million in 2015). No figures were published for other factories owned by the Italian companies Del Conca and the Concorde Group, which were built fairly recently, and Wonderful's new factory financed by Chinese



**GRAPH 1.** The red line shows tiles sales (in millions of square feet) and the blue line indicates the number of homes involved (in thousands of units).



**GRAPH 2.** Spending on renovation work (in millions of dollars) in the United States from 2001-2015.



**GRAPH 3.** Trend in spending in the non-residential building industry from 2002-2017.

backers.

In 2016, the main countries supplying tiles to the United States were, in order, China with 54 million m<sup>2</sup> at a cost of \$409 million; Mexico with 43 million m<sup>2</sup> at a cost of \$251 million and Italy with almost 36 million m<sup>2</sup> at a cost of \$617 million.

Ceramic tiles sales are expected to rise by around 6% in 2017. The driving forces behind these increases are new constructions and renovation work, while rising interest rates are slowing down sales if these rates should rise, property mortgages will also increase along with the cost of raw materials.

**Donato Grosser.** D. Grosser and Associates Ltd., New York





# WORLD OF CONCRETE



## CONCRETE REPAIR AND CEMENT ADDITIVES

The World of Concrete trade show took place at the Las Vegas Convention Center in Las Vegas, Nevada (USA) January 17-20. Attendance was down from 60,000 in 2016 to 50,000 in 2017. This decrease occurred because of the simultaneous international show for the construction industries, CONEXPO-CON/AGG, also attended by Mapei Corp., the American subsidiary of the Mapei Group, which is held only once every three years. Both the Mapei Concrete Restoration Systems (CRS) Division, including Below-Grade Waterproofing, and the Concrete Admixtures Division represented by GRT, acquired by the Group in 2014 (see *Realta Mapei International* no. 48) had booths at the 2017 WOC. In the South Hall of the Convention Center, the CRS Division displayed its portfolio of products using a new space

providing two meeting rooms, a storage room for literature, and a mixing room for the demo team. In addition, elevated stations held applied samples, which were a focus of conversations between Mapei representatives and attendees.

The center of the Mapei booth was occupied by a demo stage where Mapei Demo Team showed numerous attendees the features and benefits of Mapei concrete repair mortars (PLANITOP 11 SCC), screeds (TOPCEM PREMIX and TOPCEM PRONTO), products for struc-

tural strengthening (CARBOPLATE) and coatings and sealers (PLANISEAL WR and PLANISEAL WR40). These products are manufactured and distributed on the American market by Mapei Corp. In the North Hall, the Mapei/GRT sales team met with customers from around the country, as the Concrete Admixtures division continues to grow from a regional to a national supplier for concrete contractors on large projects. The Mapei representatives highlighted superplasticizers for ready-mix concrete and products such as POLYCHEM 850 multi-range water reducing admixture. In 2017, Mapei introduced its Cement Additives Division (C-ADD) at the WOC with the Mapei/GRT booth. Dr. H. Wang, Technical Manager for the C-ADD division in the Americas, was on hand to speak with cement producers about Mapei's cement additives and other products that can help reduce the amount of energy required to produce cement, thus lowering the cement factories' carbon footprint.

As every year, Mapei held a VIP hospitality event in the CRS booth to announce and celebrate the 80<sup>th</sup> anniversary of the company with customers and friends.







## ENTHUSIASM AND GREAT INTEREST AROUND MAPEI BOOTH

This year attendance at TISE (The International Surface Event) West was 37,055, an increase of 7% over the 2016 numbers.

A big feature of the Mapei booth was the celebration of the company's 80<sup>th</sup> birthday. After 80 years, Mapei is stronger than ever as the world leader of materials for construction and flooring. Mapei Americas is celebrating the anniversary with a giveaway of some delightful presents to contractors who use Mapei products, like an Arctic Cat Wildcat X recreational off-highway vehicle with side-by-side seating, and a Colnago V1-R road bike, just to mention a couple. At the Mapei booth, TISE attendees saw many demonstrations. On the spotlight were MAPEGUARD UM, a waterproofing and vapor-pressure-equalizing underlayment membrane that provides crack suppression for use under ceramic tile and stone installations, for both residential and commercial applications. Visitors also got to see demonstrations of ULTRAPLAN EXTREME 2 self-leveling underlayment. It is especially formulated

for leveling interior horizontal concrete surfaces where environmental controls are not operational or the building is not enclosed.

In addition, ULTRABOND ECO 373 was introduced, a universal pressure-sensitive multi-flooring adhesive. It was designed for the installation of a wide variety of resilient flooring types.

Mapei was well-represented at TISE West with speakers giving presentations at the conference portion of the program, like the Technical Services Manager Jim Whitfield, and Michael Granatowski, National Sales Manager for Architectural and Commercial Projects.

During the trade-show, Mapei hosted its traditional VIP Hospitality Event in the Mapei booth. This event is held each year to show Mapei's appreciation for its distributors, contractors and architectural/design guests. The 80<sup>th</sup> anniversary was celebrated with cupcakes decorated with an 80 symbol and edible glitter over Mapei blue frosting. Everyone enjoyed the festive spirit of the event.

The Design & Construction Week®



**ABOVE.** The Mapei booth was the demo stage for many products, among which MAPEGUARD UM, ULTRAPLAN EXTREME 2 and ULTRABOND ECO 373.

(DCW), co-located with the NAHB International Builders' Show® (IBS) and the National Kitchen & Bath Industry Show® (KBIS) took place a week before TISE West in Orlando, Florida. The IBS and KBIS shows brought together more than 80,000 builders, general contractors, remodelers, designers, flooring professionals, as well as product specifiers from around the globe. Mapei participated with a booth at the event.



# COVERINGS



## GREAT SUCCESS FOR THE NEW TRANSLUCENT GROUT AND FOR THE SEMINARS HELD BY MAPEI EXPERTS

Coverings 2017, the international tile and stone expo, was booming this year, with more than 28,000 attendees. This figure equals a 9% increase over 2016 attendance when the show was held in Chicago, and a 10% increase over the 2015 show in Orlando. Over 90 countries were represented by 1100 exhibitors in 43,200 m<sup>2</sup> of space at the Orange County Convention Center.

Mapei's booth was a hot spot at the show with the launch of FLEXCOLOR 3D, a ready-to-use translucent specialty grout with an iridescent effect. FLEXCOLOR 3D comes with 10 different effects, including metallic shades, neutrals and colors. The characteristics of this innovative grout drew designers, contractors and the media to demonstrations held in the booth, and they stayed afterward to collect brochures, color charts and applied samples. Mapei gave away tiny flash lights that highlighted the iridescent effects, and these quickly became a collector's item at the show.

Another popular product at the Mapei booth was new MAPE-GUARD UM, a lightweight, waterproofing and vapor-pressure-equalizing underlayment membrane that provides crack suppression for use under ceramic tile and stone installations which stroke the attention of contractors and installers because it functions as an uncoupling membrane also for polymer-modified mortars.

There were over 65 conference sessions at Coverings 2017,

just to mention a couple: the panel Technical Services Manager Dan Marvin sat on about the new standards for thin (gauged) large tile, or the panels participated by Cris Bierschank, Sustainability Manager for Mapei Americas and Mikaela Decio, Environmental Sustainability Manager for Mapei Italy titled "Health, Safety, Environment, Design: Selling Tile Sustainability" (see box on the opposite page). Bierschank also gave two mini lectures on "Beginner Blogging: Simple Tips for Connecting with Customers."





## SUSTAINABILITY AT 360°

At the Coverings Expo, special emphasis was also placed on environmental sustainability by associations such as Confindustria Ceramica and TCNA (Tile Council-North America), who presented their EPD (Environmental Product Declaration) for the sector to underline the importance of transparent communication by manufacturers of building materials regarding their impact on the environment.

Mapei as a company was represented at a round-table event entitled “Health, Safety, Environment, Design: Selling Tile Sustainability” alongside Bill Griesse (TCNA), Andrea Contri (Confindustria Ceramica) and Ryan Fasan (architect). Together with Cris Bierschank (Environmental Sustainability Mapei Corp.), we mapped out how Mapei introduces sustainability into its products.

Mapei firmly believes that sustainability is a value that we must be able to measure, verify and certify: only by so doing can we guarantee transparency to our clientele and avoid “greenwashing”.

For Mapei sustainability means communicating through EPD's, which describe the environmental impact of our products during their entire life cycle, from extraction of the

raw materials to their transport phase, their transformation during the manufacturing phase, right up to the distribution phase of the product and their final disposal. EPD's are documents which have been verified and certified by an external body (in the case of Mapei EPD International).

Certification bodies and protocols, established originally in the USA and then extended to cover all the world, such as LEED (Leadership in Energy and Environmental Design), LBC (Living Building Challenge) and WELL (The WELL Building Standard), have implemented criteria for sustainability and imposed specific requirements for constructions based on the life cycle study method.

During the round table, Mapei's 360° approach to sustainability was also illustrated: EPD's, the evaluation of the emission of organic compounds, the durability of products to reduce levels of waste and the reduction of the amount of raw materials actually extracted.

**Mikaela Decio.** Environmental Sustainability, Mapei SpA

## SMALL ECO-SUSTAINABLE HOMES AT “INSTALLATION DESIGN SHOWCASE”

The Installation Design Showcase (IDS), sponsored by the National Tile Contractors Association (NTCA) features every year live installations of tile in a variety of applications; and this year the tile was installed in three “tiny houses”, an increasingly popular lifestyle trend in the U.S. Mapei provided the installation materials – like waterproofing, mortars and grouts – for Tiny House #2. The 175 square-foot Retro Bungalow was designed by Kim Lewis Designs and installed by NTCA Five Star Contractor Visalia Ceramic Tile, Inc.

A variety of Italian tile from the Ricchetti Group and Atlas Concorde were used to complement the vibrant colors in the one-of-kind home.

The Palm Spring- inspired Retro Bungalow tile was set with Green

Squared certified Mapei ULTRALITE MORTAR. Mapei ULTRALITE MORTAR is a premium-grade, lightweight, polymer-modified mortar specifically designed for ease of application with large-and-heavy tile.

To complete a tiny home renovation in three days also required a rapid-setting grout. ULTRACOLOR PLUS FA is a color-consistent, stain resistant, fast-setting “all-in-one” grout replacement for sanded and unsanded grouts filled all the joints. ULTRACOLOR PLUS FA is formulated with 10% recycled content, and it is certified by the TCNA Green Squared Program. Using sustainable products in a tiny home contributes to the reduction in carbon footprints and lifecycle emissions.

Both products are marketed on the American market by Mapei Corp.





## THE WINNERS OF THE “2017 CERAMICS OF ITALY TILE COMPETITION”

The “Ceramics of Italy Tile Competition” is an initiative of Confindustria Ceramica to promote excellence in the use of Italian ceramic tiles in buildings designed in North America. This page contains a list of the 2017 Design Awards.



© Laurie E. Donald DBA Bernstein Associates

**3**



© Remi Carreiro

**4**

### INSTITUTIONAL ARCHITECTURE

#### 3. Winner

**Project:** Jerome L. Greene Science Center, home to the Mortimer B. Zuckerman Mind Brain Behavior Institute (New York, NY)

**Designer:** Renzo Piano Building Workshop

#### 4. Honourable Mention

**Project:** Ryerson University ServiceHub (Toronto, ON)

**Designer:** Gow Hastings Architects



© Amy Barkow of Barkow Photo

**1**

### COMMERCIAL ARCHITECTURE

#### 1. Winner

**Project:** MediaMath 4 World Trade Center (New York, NY)

**Designer:** Jennifer Carpenter Architect

#### 2. Honourable Mention

**Project:** The Ridge at Lake Geneva (Lake Geneva, Wisconsin)

**Designer:** CallisonRTKL



© CallisonRTKL (David Whitcomb)

**2**



© Mikko Kikuyama

**5**

### RESIDENTIAL ARCHITECTURE

#### 5. Winner

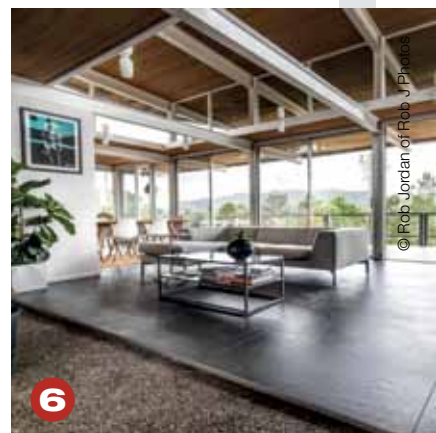
**Project:** Ocean View House (Fire Island Pines, New York)

**Designer:** Bromley Caldari Architect

#### 6. Honourable Mention

**Project:** Case Study House 26 Remodel (San Rafael, CA)

**Designer:** Cord Struckmann Architect



© Rob Jordan of Rob J. Photo

**6**



# SET the MOOD

**Personalize your space**  
with the **new MAPEI**  
**grout colour collections.**



SERENE



TRADITIONAL



NATURAL



ROMANCE

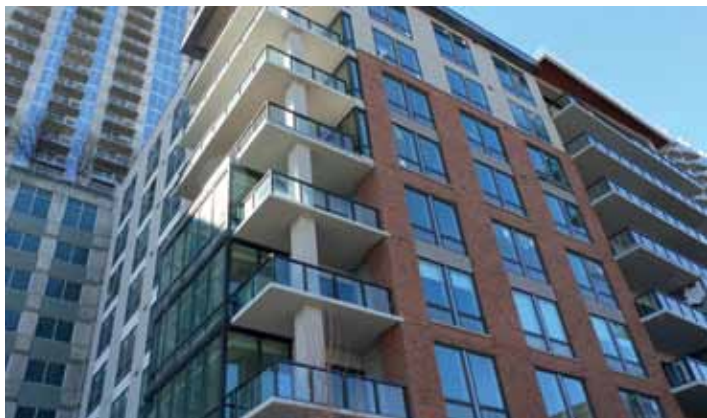


GLAMOUR



Learn more on [grouts.mapei.com](http://grouts.mapei.com)





# SEVENTH MIDTOWN CONDOMINIUMS IN ATLANTA

MAPEI PRODUCTS FOR WOOD AND CERAMICS AT THE HEART  
OF NEW AND LUXURIOUS MIDTOWN CONDOMINIUMS

After the severe collapse of the Atlanta real estate market in 2009, property development has begun to make a comeback. Because financing has been challenging, some developers have started with smaller projects. As always in real estate, location is everything; stylish luxury in the heart of Atlanta's second largest business district has a definite attraction for investors. About 6 million tourists a year visit the Midtown district in Atlanta. In order to give owners value for their money, the Loudermilk Companies developed Seventh Midtown – 20 spacious condominiums spread over eight floors above a retail/commercial space on the ground level at 7<sup>th</sup> Street and

Peachtree Street. The first four floors house three condos on each floor, while the next four floors are devoted to two residences each. Two penthouses occupy the top floor. The company's mission was to deliver luxury residences with high-end finishes, including site-finished hardwood floors in the living areas and the latest in large-format tile for bathroom walls and floors.

## **FROM MAPEI THE BEST INSTALLATION OF CERAMICS AND WOOD**

Work began with proper surface preparation before flooring





## TECHNICAL DATA

**Seventh Midtown condominiums**, Atlanta – Georgia (USA)

**Period of Intervention:** 2015-2016

**Intervention by Mapei:** supplying products for the installation of ceramic tiles and parquet

**Client:** The Loudermilk Companies

**Contractor:** Brasfield & Gorrie

**Project:** Lord Aeck Sargent

**Installer Company:** Dalton Carpet One Floor & Home

**Mapei Distributor:** L. Fishman & Son, Inc. and Specialty Tile Products Inc.

**Mapei Coordinator:** Darin Weisemiller (Mapei Corp.)

## PRODOTTI MAPEI

Substrate preparation: Eco Prim Grip , Ultraplan M20 Plus\*

Installation of parquet: Ultrabond ECO 975 \*

Installation and grouting of ceramic tiles: Ultraflex 1\*, Ultracolor Plus, Kerapoxy CQ, Keracaulk S\*

\*This product is manufactured and distributed in the American market by Mapei Corp.

For further information on these products see [www.mapei.us](http://www.mapei.us) and [www.mapei.com](http://www.mapei.com)

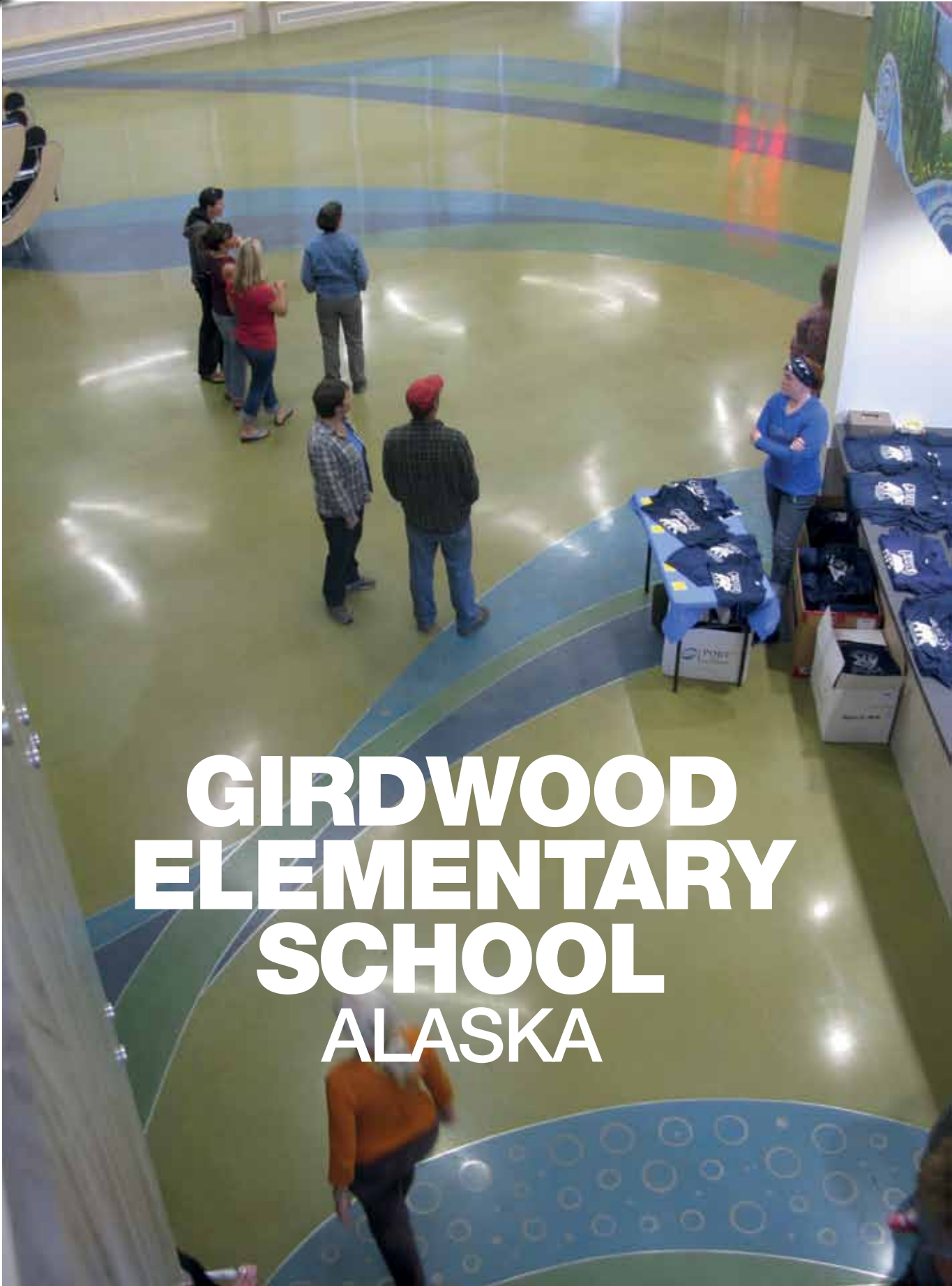
was installed. Some areas on each floor were not completely flat and level.

ECO PRIM GRIP was used to enhance the bonding of the 465 m<sup>2</sup> of ULTRAPLAN M20 PLUS self-leveling underlayment that was poured in these areas. By using ULTRAPLAN M20 PLUS, the team eliminated the need to shotblast the concrete substrate, saving the project the cost of additional labor and reducing the time that would have been necessary for surface preparation.

The site-finished wood planks were glued down with ULTRABOND ECO 975 adhesive. The adhesive's low-odor formula, which is based on rapidly renewable materials, with very low emission of volatile organic compounds (VOC), made it the ideal product for use in a residential setting. The wood flooring was installed in living rooms, dining rooms, kitchens, bedrooms (optional), hallways and foyers. In all, the team installed 2,787 m<sup>2</sup> of wood flooring. The kitchen backsplashes were tiled with white porcelain tile using ULTRAFLEX 1 mortar and ULTRACOLOR PLUS grout. The same white tile was used in some of the condo bathrooms, a cream-colored 30 x 61 cm tile was placed on the walls and floors of the bathrooms. These tiles were also set with ULTRAFLEX 1. The bathroom floors were grouted with ULTRACOLOR PLUS, while the bathroom walls were grouted with KERAPOXY CQ 100%-solids epoxy grout to resist wet conditions. MAPEI's KERACAULK S caulk was used to seal all of the transitions and 90-degree angles in the showers.

The balconies that add to the ambiance of each apartment were also tiled. The tiles were set with ULTRAFLEX 1 and grouted with ULTRACOLOR PLUS.





# GIRDWOOD ELEMENTARY SCHOOL ALASKA



## WALK-ON ART BRINGS THE ENVIRONMENT INSIDE AT ALASKA ELEMENTARY SCHOOL

Girdwood School is located in Girdwood, Alaska, 36 miles southeast of Anchorage, which is a year-round resort town surrounded by the peaks of the Chugach Mountain Range and famous internationally for its 5-star ski resort, Alyeska.

The Anchorage architectural firm chosen to design both the expansion and the renovation to the original parts of the school (constructed in 1982) was McCool Carlson Green (MCG). MCG's project called for levelling and smoothing all of the floors with a self-levelling concrete topping, which could be stained and polished to a high gloss – such as ULTRATOP PC. MCG looked to a local Girdwood artist, Sheila Wyne, who evoked the Girdwood outdoor living experience using ULTRATOP PC for her creative concepts.

Moose, ptarmigan and snowshoe tracks were created by local artists Jim Dault and Shala Dobson with aluminum. First, MAPECEM QUICKPATCH concrete patch was used to repair a minor defect in the floor. Then, PLANIBOND EBA bonding agent was applied to the entire floor to ensure a perfect bond of the ULTRATOP PC to the substrate/floor. The aluminum strips were epoxy-anchored in place on the concrete slab in the form of curves. CNC-cut tracks, as well as the bubble circles found in the sand flats, were hand-placed and epoxy-anchored to the slab by Wyne, Dault and Dobson.

PLANIBOND AE anchoring gel was used to anchor the aluminum strips and the other embeds to the PLANIBOND EBA and sand surface. After these aluminum pieces were laid out and PLANIBOND AE had dried, ULTRATOP PC has been poured in the hallways and the common areas/auditorium, flowing it just over the surface of the embedded aluminum pieces that created the various themes. ULTRATOP PC was then flowed around all of the embedded aluminum strips and design features.

After the ULTRATOP PC had cured for 24 hours, the grinding and polishing procedures were carried out. The ULTRATOP PC had to be cut down to the surface of the embedded aluminum strips, snowshoes, moose tracks, etc., in order to fully expose them within the floor.



Next, five different acetone-carried stains were applied per Wyne's color scheme to evoke the natural striations and bubbles created in the sand flat by the daily tides.

The final steps involved the use of a polishing diamond, followed by two coats of sealer. The Girdwood School project is very special for many reasons. The floor art is totally unique and captures the essence of daily life and nature in rural Girdwood. The difficulty factor in turning the architects' and artists' concept into reality rested with the skill of the installer in polishing both concrete and aluminum – which are vastly different in hardness – and with blending stains and dyes to achieve the color nuances that were required to deliver the intended artistic impact. The self-levelling topping performed flawlessly to provide a level and uniform medium for dying and staining, as well as create a uniform shine.

### TECHNICAL DATA

**Girdwood Elementary School**, Girdwood, Alaska (USA)

**Period of Construction:** 1982

**Year of Mapei**

**Intervention:** 2015

**Intervention by Mapei:** supplying products for the preparation of cementitious floorings

**Client:** Anchorage School District

**Contractor:** Watterson Construction

**Designer:** Sheila Wyne

**Works direction:** Greg Hutchins – Performa, Inc.

### Mapei Distributor:

Anchorage Sand & Gravel Co., Inc.

**Mapei Coordinator:** Tom Lundgren (Mapei Corp.)

### MAPEI PRODUCTS

Preparation of the floorings:

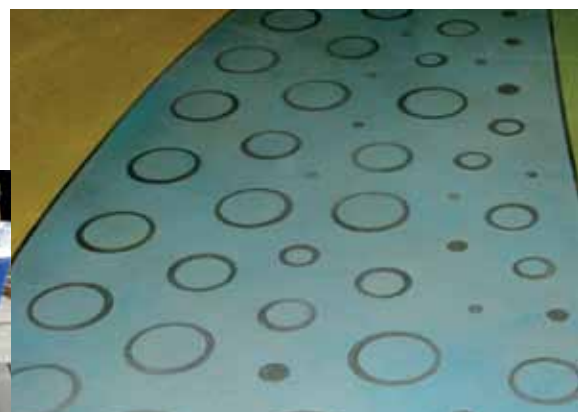
Planibond EBA, Ultratop PC, Mapecem Quickpatch, Planibond AE

(These products are manufactured and distributed in America by Mapei Corp.)

For further information on these products see [www.mapei.us](http://www.mapei.us) and [www.mapei.com](http://www.mapei.com)



Some phases of the decoration of the floorings. The product chosen for the finishing was ULTRATOP PC.





# POLYGLASS USA

WATERPROOFING MEMBRANES WITH A FOCUS ON INNOVATION AND SUSTAINABILITY

Polyglass U.S.A., Inc. manufactures bitumen and synthetic waterproofing membranes for low- and steep-slope roof applications that are distributed across the whole of the American territory. But the story of Polyglass USA has its roots in Italy. In the 1960s the three Zanchetta brothers, Luigi, Romano and Antonio, who at the time were working in the roofing sector, founded "Superasfalti Zanchetta", a company specialised in waterproofing solutions, and began manufacturing on a small scale.

In 1969, they started producing on a more industrial scale and the Polyglass brand was launched. This was just the start of an expansion process and in the 1980s they entered the

United States market, opening their first facility in 1989 in the state of Nevada (in Fernley), which was followed in 2000 with a facility in Hazleton (Pennsylvania) and then another in Winter Haven (Florida) in 2006.

Polyglass was acquired by the Mapei Group in October 2008. The head office of Polyglass USA is in Deerfield Beach, Florida, where there is also a Research & Development Centre. Over the course of the last few years, new facilities in Phoenix (Arizona) and Waco (Texas) were added to the portfolio of sites mentioned above.

Today, Polyglass USA has 260 employees and a turnover of more than 200 million dollars.

## CONSTANT GROWTH IN AN EXPANDING MARKET

**An interview with  
Natalino Zanchetta, CEO  
of Polyglass USA**



**An Italian in America specialised in waterproofing membranes.**

**Polyglass entered the American market, under your guidance, in the 1980s. How have you reacted to this challenge?**

It was, and still is, an enormous challenge, but at the same time the overall experience has helped me mature and grow.

The difficulty has been to completely change my mentality and adapt to American culture and create products which are completely different to the standard

products used in Italy and Europe. But this difficulty has helped in my growth and stimulated me towards innovation.

And that is what led to the development of Polyglass self-adhesive membranes; a major contributing factor as to why Polyglass USA has been so successful.

**What is your outlook for the waterproofing membranes market in the United States?**

The market is in constant expansion due





**ABOVE AND TO THE RIGHT.** Polyglass USA were present at the International Roofing Expo in Las Vegas with their own stand. Practical demonstrations on how to install the membranes were very popular.

Apart from their Polyglass Spa facilities in Italy, they also have a subsidiary in the UK.

### CONTINUOUS INNOVATION AND RESEARCH

For Polyglass, their international outlook has always been in step with their approach to scientific research and their aim to constantly offer new solutions which are both simple and effective. And this is how their glass fibre support layer has been joined by non-woven polyester fabric, and traditional flame-applied membranes have been joined by the latest generation of self-adhesive membranes, which guarantee a high level of reliability during application.

In 1990, Polyglass developed ADESO® technology which enabled dual-compound, self-adhesive membranes to be produced, with an APP or SBS formulation on the top side and a highly adhesive formulation on the bottom side of the reinforcement.

A more recent introduction was CURE® Technology, a patented thin-film technology which increases energy efficiency, provides resistance to stains and UV rays and improves granule adhesion.

Polyglass has always firmly believed in the importance of respect for the environment and is committed to the research of products which improve energy efficiency and have a lower impact on the environment. Polyglass products can also help obtain credits for the LEED certification of buildings.

### ENORMOUS SUCCESS AT THE IRE 2017 EXPO

Polyglass USA took part at the 62<sup>nd</sup> edition of the International Roofing Expo (IRE), the international trade fair of waterproofing solutions for roofs held this year from the 1<sup>st</sup> to the 3<sup>rd</sup> of March in Las Vegas, which was a resounding success in terms of the number of exhibitors and the number of visitors.

Polyglass had their own stand where visitors could watch numerous practical demonstrations on how to apply their products, including POLYFRESKO G SA, a self-adhesive, granular-topped membrane with a highly reflective white surface, ideal for surfaces exposed to atmospheric agents. POLYFRESKO G SA is characterised by its CURE® Technology, a patented system which increases energy efficiency, provides resistance to stains and UV rays and improves granule adhesion.

POLYBRITE 70 and POLYBRITE 70-QS water-based, elastomeric white coatings also proved to be very popular amongst visitors to the stand. These 100% acrylic-based coating products are applied on roofs and, once dry, form a seamless membrane. POLYBRITE 70-QS (the rapid version) guarantees resistance to rain within just 20 minutes of application.

The company's 25<sup>th</sup> anniversary party was also a great success: on the 2<sup>nd</sup> of March, Polyglass USA invited around 500 selected guests to a party held on a terrace in Las Vegas to celebrate in style.

The next edition of the International Roofing Expo will be held from the 6<sup>th</sup> to the 8<sup>th</sup> February 2018 in New Orleans, Louisiana.

to the increasing demand for bitumen and polymer-based membranes, particularly in the residential sector. The continuous modernisation of building codes is leading to an increase in the use of membranes, not only for roofs, but also as vapour and infiltration barriers for external walls and as acoustic barriers. The evolution of technology applied to the liquid membrane sector for repair work is constantly developing: and Polyglass USA is investing heavily in this particular field.

### What are the future projects for Polyglass USA?

Polyglass USA has ambitious projects for the next 7 years and intends growing by 100% by the seventh year. We aim to reach this goal by maintaining our intense network covering all the territories of North America in the residential and industrial construction sectors, by commissioning a new production facility in Canada and by doubling the production of solid and liquid membranes in all our other production

facilities over the next 10 years, particularly in the residential sector for the SOAR project.

### How many facilities does the company currently have in the United States?

Polyglass has production facilities in Fernley (Nevada), Hazleton (Pennsylvania), Winter Haven (Florida), Phoenix (Arizona) and, by the end of 2017, there will be the new facility in Waco (Texas). Our head office is in Deerfield Beach (Florida), where we also have a Research Centre (opening photo).





# ROOFING TECHNOLOGY

POLYGLASS USA'S MEMBRANES USED  
ON MANY SUCCESSFUL JOBSITES IN THE USA

## MAPEI MANUFACTURING FACILITY - GARLAND, TEXAS

An energy efficient, two-ply Polyglass modified bitumen roof system was chosen to recover Mapei's distribution center in Texas, U.S.A. The multi-ply system consists of ELASTOFLEX SA V self-adhered SBS base sheet and POLYFRESKO G SA, a highly-reflective white granulated self-adhered cap sheet. POLYFRESKO G SA is used for the systems primary weathering surface and provides the reflectivity required to consistently reduce the interior temperature of the building.

POLYFRESKO G SA features patented CURE® Technology, a thin-film technology that increases energy efficiency, provides stain and UV ray resistance and improves granule adhesion.





### MONTAGRANO PROJECT SACRAMENTO, CALIFORNIA

An energy efficient, highly reflective white elastomeric roof coating was selected for this 10,500 sq. ft. commercial building in California, U.S.A. Products used included KM PRIME SEAL, KM ACRYL 15 and KM POLYURETHANE FOAM. KM PRIME SEAL is a black water-based epoxy primer/sealer designed to increase the bond of acrylic elastomer topcoats to a wide variety of roofing substrates. It develops a tenacious bond to wood, concrete, fiberglass, steel, aluminum, and galvanized surfaces. KM ACRYL 15 is a premium grade water-based elastomeric coating that cures to form a seamless fluid applied roof membrane and keeps the surface cool.

### CAMPBELL CENTER DALLAS, TEXAS

Polyglass' SBS roof system was selected to reroof the nearly 100,000 sq. ft. roof atop the Campbell Center's main building and east and west towers. Located in Texas, U.S.A the Campbell Center serves as a venue for high school sports, graduations, theatrical performances, meetings, conferences, banquets and community events. The roofing solution chosen included ELASTOFLEX SA V self-adhered modified bitumen base ply and ELASTOFLEX S6 G, an SBS granulated cap sheet. ELASTOFLEX SA V is a premium membrane manufactured using patented ADESO® self-adhesive technology. ELASTOFLEX S6 G cap sheet is a high quality asphalt roofing membrane available in a variety of colors. The buff color was selected for this project.







## AMERICAN AIRLINES MUSEUM FORT WORTH, TEXAS

Polyglass' multi-ply roof system provides premium coverage for the American Airlines Aviation Museum. The museum preserves the history of American Airlines and houses the Flagship Knoxville, a fully restored DC-3 aircraft. The roof system consists of Polyglass' ELASTOFLEX SA V self-adhered base sheet and POLYFRESKO G SA FR, a fire-rated, white granulated self-adhered cap sheet. POLYFRESKO G SA FR is a highly reflective cap sheet and can reduce the interior temperature of the building. It features patented CURE® Technology, a thin-film technology that increases energy efficiency, provides stain and UV ray resistance and improves granule adhesion.



## ALAMO DRAFT HOUSE - SAN ANTONIO, TEXAS

The Alamo Draft House in Texas, U.S.A. features Polyglass' durable, white roof system. The 28,000 sq. ft. multi-ply roof features POLYFLEX SA base ply and POLYFLEX G cap sheet installed for long-term performance. POLYFLEX SA is a self-adhered modified bitumen membrane that is reinforced with a high performance fiberglass mat and manufactured using patented ADESO® self-adhesive technology. POLYFLEX G is a premium, polyester reinforced membrane for heat-welded applications.

## TEXAS RANGER HEADQUARTERS DALLAS, TEXAS

The headquarters for the Texas Rangers, an American professional baseball team, features Polyglass' highly reflective roof system. The 50,000 sq. ft. roof has POLYFLEX SA BASE, a self-adhered APP base ply roofing membrane.

The membrane is reinforced with a high performance fiberglass mat and is manufactured using patented ADESO® self-adhesive technology. POLYFRESKO G, a highly-reflective white granulated self-adhered APP membrane was used for the cap sheet. POLYFRESKO G provides the reflectivity required to consistently reduce the interior temperature of the building. It features patented CURE® Technology, a thin-film technology that increases energy efficiency, provides stain and UV ray resistance and improves granule adhesion.



ALL PRODUCTS MENTIONED IN THIS ARTICLE DISTRIBUTED  
IN THE AMERICAN MARKET BY POLYGLASS USA.



## EXTREME SLOPES NO MATCH FOR ADESO®



While imitations slip and slide, ADESO® holds firm, even in the most extreme situations. So choose the original: not only was it the first self-adhesive bitumen membrane, it is also the most reliable, providing the ultimate in waterproofing combined with total stability. It's all down to the dual APP or SBS compound and a highly self-adhesive blend on the underside. And between them lies the reinforcing carrier. Say goodbye to the torch and hello to superior performance and all the advantages this membrane offers!



[WWW.POLYGLASS.COM](http://WWW.POLYGLASS.COM)



# MAPEI CEMENT ADDITIVES PROMOTE SUSTAINABILITY

IMPROVEMENT IN PLANT PERFORMANCE  
AND REDUCTION IN CO<sub>2</sub> EMISSIONS FOR  
AN EXPANDING MARKET

Mapei is extending the production of its cement additives with its introduction of the C-ADD (Cement ADDitives) Division to the Americas. The cement additives being introduced in North America include cement additives, strength enhancers, and dust-control technology for all types of cement, as well as air-entraining and waterproofing additives for masonry cements.

The constant increase over the past two years in the U.S. production levels of cement is a sign of the robust state of the American economy's health and growth in general, and of the construction market in particular. The additives

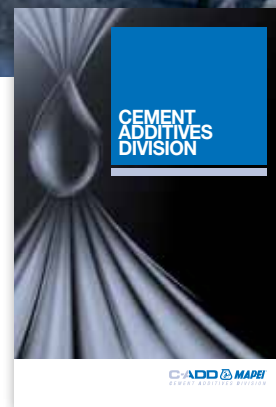
from Mapei's C-ADD line are now part of the North American scene as essential elements to tackle issues associated with the increasing demand for cement in the region.

For example, in cement grinding mills these additives increase production by 10% to 15%, and reduce the amount of energy required for the grinding process by 8% to 12%. The additives also improve cement properties such as mechanical strength and flow rate and reduce wear on components in the grinding units. As a result, maintenance costs can be reduced.

In addition, the American cement mar-

ket is trending toward marketing cement with lower clinker content. Apart from reducing production costs for cement works, lower clinker content considerably helps in reducing CO<sub>2</sub> emissions into the atmosphere. The use of strength-enhancing additives from Mapei's C-ADD line plays a key role in achieving these objectives.

For instance, if the C-ADD strength-enhancing additives allow the amount of clinker to be reduced by an average of 4%, it is calculated that, for the American market, this could lead to a reduction of around 3 million tons of CO<sub>2</sub> in the atmosphere per year.







## C-ADD DIVISION OPERATIONS

Cement additives production and customer support will be administered through General Resource Technology (GRT), which was acquired by Mapei in May 2014. Based in Minneapolis, MN, GRT specializes in the production and marketing of admixtures for concrete. Because of its affinity with C-ADD additives, the company has also been given the task of developing the cement additives business in North America. Thanks to the excellent integration of GRT with a company as widely renowned for its quality and reliability as Mapei Corporation, the approach to the cement additives market has been relatively straightforward.

The existing production units of Mapei Corporation (in Garland, TX) and subsidiary GRT, Inc., (in Madison, IL) are being used for the production of the C-ADD line. Production was started in April 2015 at the Madison plant to improve service to clients in the Midwest. Following this startup, a liquids production unit began to operate in September 2015 in the existing plant in Garland, which will help make the company's service to its clients in the Gulf and Southern states more competitive.

A third facility will be commissioned shortly in Logan Township, NJ, which will allow the company to provide an excellent logistics service to cement production plants along the East Coast and in Eastern Canada.

## AN OVERVIEW OF THE PRODUCTS

### **BXR cement additives and strength enhancers**

BXR additives are highly concentrated cement additives formulated with selected raw materials, to guarantee consistent high quality and superior performance. BXR additives may be successfully utilized in the grinding of blended cements (with such materials as blast-furnace slag, fly ash, pozzolans and limestone) and in all cases where a significant increase in strength is needed. In addition to the advantages through their use as cement additives, BXR additives guarantee remarkable increases in early and ultimate strength. BXR additives can increase strength mechanically by providing a better granulometric distribution of the finished cement as well as higher cement fineness. In addition, these additives can increase strength chemically by promoting a higher hydration rate of calcium silicates.

**Recommended dosage: 0.02 – 0.2%**  
Cements, Type I & II: 0.02 – 0.04%  
Cements, Type III: 0.03 – 0.07%  
Blended cements: 0.10 – 0.20%

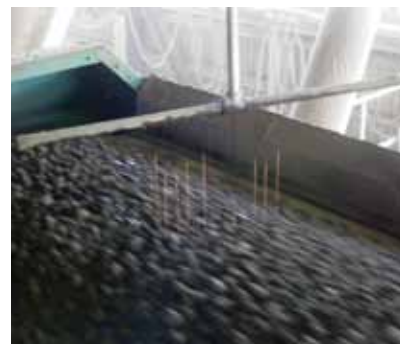
### **HSG cement additives for Portland cements**

HSG additives are high-performance cement additives generally used to increase mill production and to improve the quality of Portland cements. They are highly concentrated additives formulated with raw materials that guarantee consistent quality and superior performance.

HSG additives, thanks to their polar nature, notably reduce the attraction forces of cement particles, which are the main cause of agglomeration inside tubular mills. These additives are also able to modify the hydrated structure of cement, thereby improving strength. The disappearance or the remarkable reduction of agglomeration improves the granulometric distribution of the

finished cement with a consequent beneficial effect on the strength and efficiency of the separation process.

It is possible to obtain important production increases (and power savings) or, at the same production level, improvements of the specific surface of the finished cement. Customized formulations of HSG additives allow for the modification of the hydration produced by the cement, thereby increasing the early and/or ultimate strengths. HSG additives may be successfully uti-



**ABOVE.** Mapei cement additive packed in a tote measuring 275 U.S. gals. (1 041 L).

**BELOW.** Application of the cement additive via continuous dosage on the conveyor belt that feeds the cement mill.





**LEFT.** Ramle's cement factory in Nesher, Israel.

lized in all cases of pack-set phenomena (when not resulting from humidity) inside the mills, particularly in the grinding of Portland and limestone cements. Production increases generally vary between 10% and 30%, depending on a variety of conditions – the fineness of the cement, the grinding system available, the clinker mineralogical composition, the additive dosage, etc.

The low pack-set index obtained with HSG additives gives a better flowability of the dry cement powder with faster loading and unloading of trucks, railcars and barges.

**Recommended dosage: 0.02 – 0.08%**  
Cements, Type I & II: 0.02 – 0.05%  
Cements, Type III: 0.05 – 0.08%

#### **MCH cement additives and pack set inhibitors**

MCH additives have the same characteristics and uses as the HSG products, except that they are used for blended cements as well and are applied in different dosages. They are highly concentrated additives formulated with only select raw materials, to guarantee absolute constancy of quality and superior performance.

**Recommended dosage: 0.02 – 0.07%**  
Cements, Type I & II: 0.02 – 0.04%  
Cements, Type III: 0.04 – 0.07%  
Blended cements: 0.03 – 0.06%

#### **AEC air-entraining and waterproofing additives for masonry cements**

AEC tailor-made additives are formulated for the production of high-quality masonry cements Type N, M and S, complying with the standards ASTM C91-95c and ASTM C270. They must be added to the mill during grinding for correct dispersion and to maximize performance.

AEC additives increase air entrainment and water retention, improve workability and waterproofing characteristics, control the setting time, and extend the board life. Air entrainment can reach 15% to 21%, improving the workability of the product. Water retention can easily exceed 90%.

AEC additives' resulting entrainment of air in micro-bubbles, homogeneously distributed, improves workability, yield per surface unit and resistance to freeze/thaw cycles. Microbubbles, with controlled diameter and high stability, act as a lubricant between mortar layers, improving flow as well as workability.

AEC additives' resulting water retention prevents the mortar's mixing water from migrating toward the external substrate, thereby improving adhesion and reducing plastic shrinkage.

**Recommended dosage: 0.08% to 0.3%**  
The optimum dosage depends on the type and fineness of the masonry cement

#### **Technical assistance**

The optimum dosage of Mapei cement additives has to be found through a reliable industrial trial. Around the world, Mapei's C-ADD specialists are available to optimize the grinding circuit during the industrial trials and to suggest the most suitable dosage system.

To support the work of the C-ADD product line in the Americas, a Technical Services laboratory is currently being set up at the production facility in Logan. The lab will be outfitted with equipment and instruments – in compliance with standards of ASTM International (formerly the American Society for Testing and Materials) – to measure the chemical/physical properties of cement and the effect that additives have on cement. Team members in the lab will provide Mapei's well-renowned and highly qualified technical support to cement manufacturers.

#### **Service and sustainability**

Mapei Group is considered to be one of the leading suppliers of the cement industry worldwide. Backed by extensive problem-solving experience and knowledge of cement manufacturing processes and related problems, Mapei has been able to grow over the past decade in order to become a highly appreciated technical solution provider. And now that knowledge and experience is coming to the Americas.

"We look forward to serving the large cement producers in North America with the support of our global organization," said Luigi Di Geso, President and CEO of Mapei Corp.. "Our cement additives will help these companies to achieve their own sustainability efforts as we contribute to the improvement of the environment and help to reduce the costs of cement production."

Our thanks go to Mapei Corp. for their kind permission to use this article which first appeared in *Realtà Mapei Americas* No. 24/2017.

# TOP-LEVEL TECHNICAL TRAINING FOR MAPEI SPECIALISTS WORKING ON OPTIMISING CEMENT

Once again this year the entire Cement Additives Division (C-ADD) met in Milan for the C-ADD Meeting. Held from 19<sup>th</sup>-21<sup>st</sup> April 2017 at the Mapei Auditorium in Milan, this year's event was attended by an even bigger and more varied team than ever: headed by Davide Padovani, Global Director of the C-ADD Division, there are a total of 37 of us from 23 different countries, we speak 20 languages and operate in almost 80 countries. Hugh Wang, C-ADD's Technical Manager in the United States, called it the "UNCADD International Meeting", because it was just like taking part in a meeting of the United Nations. The opening session was chaired by Davide Padovani, who gave a detailed Business Review of all the C-ADD team's operations in 2016, specifying in which countries our Division has successfully expanded, the leading 10 markets in terms of income and the latest products by leading cement manufacturers worldwide. Walter Nussbaumer, the Global Director for Liquid Admixtures, then provided an overview of the general trend in the three lines of Additives for Cement, Products for Underground Constructions (JTT) and Cement Additives (C-ADD). Attention focused on the growth figures in 2016 for each of the three lines, the most important projects to have been completed, and those currently underway. The session concluded with a speech by Ms. Spazzoli, Operational Marketing & Communication Director, and the marketing staff, with a projection of the latest official video clip highlighting the latest products and innovations for Mapei's 80<sup>th</sup> Anniversary and also illustrating the latest C-ADD brochure entitled "Cement Additives Division - Technical Services".

This was a particularly important speech for the new members of the team, who, for the first time, got the chance to see the whole Mapei set-up and all the marketing tools serving our division. The new brochure lists the top-rate services the C-ADD team offers the cement manufacturing industry with a view to helping its customers optimise their products, manufacturing processes, production costs and market competitiveness. The technical assistance service mainly covers three realms: reproduction of cements and laboratory tests; auditing of mills and assessment of factories; detailed technical studies.

The rest of the schedule then focused on the main purpose of the C-ADD Meeting: to provide the entire team with top-quality training. There were, as a matter of fact, four intensive technical training sessions. The first seminar was led by Matteo Magistri, Global R&D Manager C-ADD Mapei SpA and focused on the role of plaster in cements: hydration, dehydra-



**ABOVE.** A picture of the C-ADD Team gathered together for their annual meeting.

tion during the grinding process and interaction with our additives for cements. Jaleel Mohamed, Area Manager for C-ADD Mapei Dubai, then gave a lecture devoted entirely to the issue of hexavalent chromium (CrVI) in cements: context, Mapei products used for production purposes, key projects and technical comparisons. The speaker at the final session was Hugh Wang, who concentrated on the microscopic properties of clinkers, their application for industrial purposes and storage problems.

The exchange of ideas and experiences between everybody taking part was vitally important for understanding the issues everybody has encountered or might encounter when dealing with their own customers. This sharing process was also vitally important for strengthening our team spirit. At the same time a special event was arranged to bring out our competitiveness and give us all an adrenaline rush: a go-kart race was held between the various technical sessions. This particular C-ADD Meeting was made really special by the opportunity we all got to watch a ballet at the Scala Opera House. That was a truly unique experience for all of us, something for us all to treasure wherever we were heading home to.

**Muriel Costi.** Mapei C-ADD Division and Mapei SpA



# MADE EXPO



# MADE EXPO 2017

A host of new products and impressive numbers in every sector of the building industry

**80**  
years  
1937-2017

1,060 exhibitors, a nett total of 52,000 m<sup>2</sup> of display space, 123 conventions (105 with training credit certificates), 11,000 participants with more than 6,000 taking part at the BuildSmart sessions, more than 620 internationally renowned speakers, 165 tests presented at Demo Live, 165 delegates from 38 different countries at more than 1,000 B2B meetings with exhibitors, more than 650 journalists from all around the world and 106,000 visitors, 12% of which from foreign countries. These are the impressive figures that confirm how MADE expo 2017, held at the Rho Exhibition Centre in Milan from the 8<sup>th</sup> to the 11<sup>th</sup> of March, is the leading event for the architecture and construction market.

An exhibition at its eighth edition which Mapei celebrated, once again, with a 360° presentation which also included their subsidiary companies Polyglass and Va.GA, focused on the “global quality” of their vast range of products that characterise the company in the world of building.





**ABOVE.** The Mapei stand had a rich programme of practical demonstrations on how to use their products correctly which attracted numerous visitors.

A stand with great impact with which Mapei celebrated its 80<sup>th</sup> anniversary along a pathway where the products were the key players



An edition characterised by important signs of recovery on the national market and the presence of a highly-qualified international public, a range of goods of the highest quality on offer and in-depth discussions on current issues, such as innovation, urban regeneration, anti-seismic and hydro-geological safety concerns and environmental and economic sustainability.

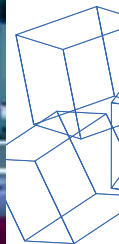
#### **A SPACE TO SHARE THE 80 YEARS OF A STORY OF SUCCESS**

The host of innovative solutions and ideas were a pleasant surprise for the designers and operators from the building world crowding around Mapei's new display area, in Pavilion 6, with its presentation of numerous new products and systems. Thanks to a series of practical demonstrations held by Mapei technicians, visitors had the chance to increase their knowledge of the solutions and see for themselves the effectiveness of Mapei systems for installing large format tiles, finishes for internal

areas, the renovation of old external insulating systems, the restoration of concrete, waterproofing systems for roofs and solutions for strengthening floors.

A stand with a high visual impact with which Mapei celebrated their 80<sup>th</sup> anniversary, along a pathway of graphics and illustrations where it was the figures that did the talking: 2.4 Billion Euros consolidated turnover in 2016, 18 main research centres, 81 subsidiary companies, almost 10,000 employees, 1,000 new formulas every year, 5,000 products for the building industry, 66,000 clients from all around the world, 161,000 professionals from the sector involved in training courses and 73 production facilities in 33 countries from the five continents.

And let's not forget that, for Mapei, sustainability is not just a fashion, it is a way of being, which involves each and every corporate process, and that the true stars of the stand were the Mapei products and systems.



## TO THE LEFT.

Highlighted at MADE expo was the new waterproof coating product MAPE-ANTIQUE ECO-ASTIC for protecting historical buildings.

on the market, and the new “Dark Grey” versions, Mapei can now offer a complete system to help balance the attractive finish of stone road surfaces.

The other new product presented in the admixtures for concrete section was MAPECRETE MINERAL NEUTRAL, a min-

eralising solution used to treat pervious concrete and concrete substrates. Specifically developed to harden and consolidate old and new floors, MAPECRETE MINERAL NEUTRAL increases concrete’s resistance to abrasion and its durability over the years. It is also available in the coloured version, MAPECRETE MINERAL COLORED.

## RESTORATION OF MASONRY BUILDINGS

For the restoration of masonry buildings sector, Mapei proposed the waterproof coating product MAPE-ANTIQUE ECO-ASTIC and the new range of colours for MAPE-ANTIQUE ALLETTAMENTO and MAPEWALL MURATURA FINE bedding and pointing mortars. The two coloured mortars have been developed to enhance construction features on “exposed” masonry: MAPE-ANTIQUE ALLETTAMENTO, a cement-free mortar made from natural hydraulic lime and Eco-Pozzolan, is recommended for listed buildings of historical and artistic interest, while MAPEWALL MURATURA FINE is recommended for new builds. The other new product, MAPE-ANTIQUE ECO-ASTIC, is a two-component, cement-free coating product made from lime and Eco-Pozzolan for waterproofing and protecting historical buildings.

## URBAN DESIGN AND ADMIXTURES FOR CONCRETE

In the sector of products for street furniture, Mapei has two systems that are well known and highly appreciated: MAPE-STONE for repairing, installing and grouting stone road surfaces and MAPEI COLOR PAVING for making architectural concrete surfaces with a washed-effect finish. Within the Mapestone system, new products have been introduced to meet new market demands: a new “Dark Grey” colour for MAPESTONE PFS2 and MAPESTONE PFS2 VISCO pre-mixed and high strength mortars which are used to fill grout lines. With the “Neutral” version, which was already available

## WATERPROOFING SYSTEMS

Amongst the products used to waterproof roofs, MADE Expo was the ideal opportunity for Mapei to showcase AQUAFLEX ROOF PREMIUM, the new ready-mixed, water-based polyurethane membrane with zero solvents and VOC. It is applied without the need for other protective layers, it is non-slip, resistant to foot traffic and root penetration in compliance with UNI







CEN/TS 14416 and carries CE 1504-2 marking. Another product dedicated to the roofing sector which has been recently introduced and was on show at the exhibition was MAPESLOPE cementitious levelling mortar for evening out and restoring slopes and filling hollow areas on roofs without having to remove the previous waterproofing system or coating. As far as waterproofing underground structures is concerned, the other novelty was the MAPETHENE range of self-adhesive bitumen membranes suitable for application at temperatures from  $-5^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$ .

**TO THE RIGHT.** Mapei proposed its new Master Collection for all types of internal and external surfaces, consisting of 1002 shades to meet the requirements of even the most demanding designers.



## SYSTEMS FOR LVT

Amongst products for use in internal areas, Mapei presented their systems for installing LVT (Luxury Vinyl Tiles) at the exhibition. One of these systems is ULTRABOND ECO MS 4 LVT, recommended for installing LVT on floors, including in damp surroundings. The system includes the one-component, silylated polymer-based reactive adhesive ULTRABOND ECO MS 4 LVT and the non-slip finish MAPECOAT 4 LVT, as well as the most suitable products for preparing and sealing substrates for this particular area of use. The ULTRABOND ECO MS 4 LVT WALL version, on the other hand, is recommended for bonding LVT on walls. Thanks to its high performance characteristics, it can be applied on walls without running and it prevents LVT from slipping.

## RESIN AND CEMENTITIOUS FLOORING

MAPEFLOOR COMFORT SYSTEM is Mapei's proposal for seamless resin flooring. Available in 4 different versions and a vast range of colours and shades, this system may be used for internal floors in the civil and service sectors, as well as in other environments such as shops, museums and schools. Floors

made with this system are highly attractive, easy to clean and maintain and are comfortable underfoot. Thanks to its soundproofing properties, this product is recommended for use in surroundings which have the arduous task of reducing noise.

## WALL FINISHES AND HEAT INSULATION SYSTEMS

For all internal and external surfaces Mapei proposes its new and recently updated Master Collection. Made up of 1002 colours, this new collection of shades will satisfy the requirements of the most creative designers and the most demanding clients.

To finish off internal surfaces in buildings, Mapei presented DURSILITE product family at the exhibition, a high performance, water-based paint for decorating and protecting surfaces in internal areas. This family of products also includes DURSILITE finish, as well as other versions such as DURSILITE MATT, which has excellent white balance and a matt finish, and DURSILITE PLUS hygienising paint with mould-resistant Mapei BioBlock® technology, which guarantees surfaces maintain their high permeability to water vapour. A recent new arrival is DURSILITE GLOSS, a modified acrylic resin-based wall





paint with a smooth, semi-gloss finish suitable for all surfaces, including those already painted.

Also under the spotlight at the exhibition was the MAPETHERM SYSTEM, an external insulating system for buildings, and MAPETHERM FLEX RP, an elastic skimming compound resistant to impact loads and aggression from microorganisms, recommended for renovating external insulation systems with cracks, mildew and mould and for protecting critical points in the system, such as areas at risk of damage from impact loads and stresses.

## BUILDING PRODUCTS

Amongst the new products presented at the exhibition was PLANITOP FINE FINISH for repairing concrete: a light grey coloured, ultra fine-textured, rapid-hardening cementitious skimming compound for internal and external porous or uneven concrete structures. MAPEGROUT FMR-PP, on the other hand, is the new thixotropic mortar for repairing and strengthening concrete structures where a high level of ductility is re-

quired. Thanks to its resistance to sulphates and alkalis, it is recommended for repairing sewage systems and underground tunnels and constructions, such as underground railways.

## STRUCTURAL STRENGTHENING FOR BUILDINGS

In such a critical and difficult moment such as this regarding anti-seismic prevention measures, at the exhibition Mapei proposed the MAPEWRAP EQ SYSTEM, a system that has been tested and certified at the Department of Structural Engineering of the Federico II University of Naples, which is recommended for preventing the collapse of brick-cementitious floors and preventing secondary elements in buildings from tilting over.

The solution for restoring and strengthening floors, on the other hand, is PLANITOP HPC FLOOR, a mortar with very high mechanical performance characteristics suitable for application by pouring, without the risk of segregation, in layers from 1.5 to 3 cm thick without using electro-welded support mesh or metal connectors.



**ABOVE.** The new products presented at the exhibition included PLANITOP FINE FINISH, an ultra fine-textured smoothing and skimming compound for repairing concrete.



## FLEXIBLE SEALANTS AND ADHESIVES

For the chemical anchors sector Mapei highlighted MAPEFIX EP and MAPEFIX VE SF at MADE expo, certified structural resins for anchoring work on all types of substrates in both tension zones and compression zones, including zones exposed to seismic stresses and loads.

Also highlighted was MAPEFLEX PU45 FT, an elastic, paintable, rapid-hardening polyurethane sealant and adhesive suitable for sealing and bonding all types of internal and external substrates.

## PRODUCTS FOR CERAMICS AND FOR SOUND-PROOFING BUILDINGS

Amongst the proposals for installing ceramic and stone material was the Set the Mood range of coloured grouts and UL-

TRALITE lightweight adhesives. Set the Mood is a complete range of grouts and sealants and is unique on the market for the vast range of products and shades available (50 different colours as well as a transparent version).

Other highlighted products for installing ceramic were the ULTRALITE one-component, lightweight cementitious adhesives, with incorporated LowDust technology, available in 15 kg bags.

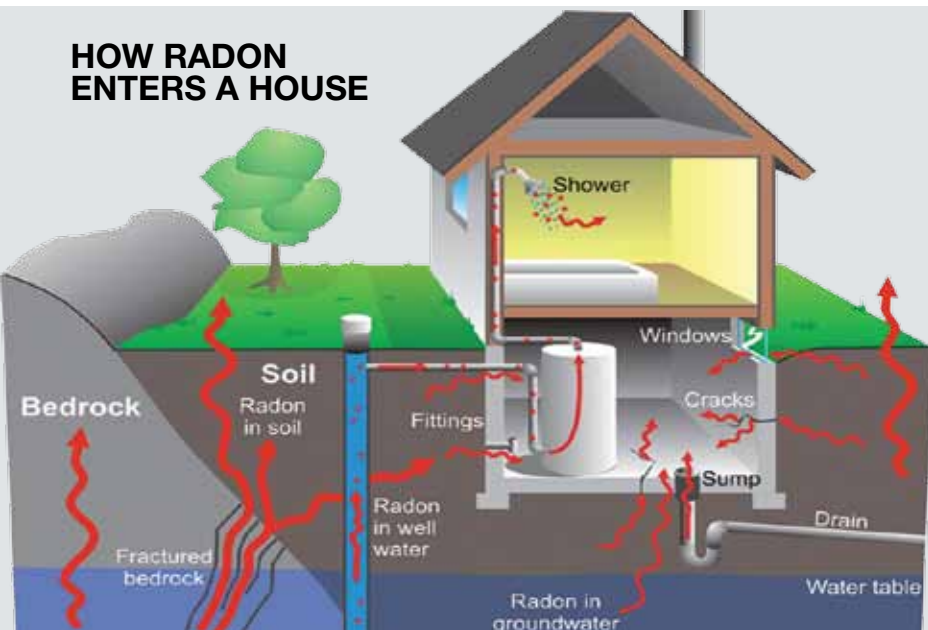
Amongst the systems proposed at MADE, two systems for combatting noise from footsteps in buildings were particularly appreciated: MAPESILENT, recommended for making floating screeds before installing any type of flooring, and MAPESONIC CR, a system applied over old flooring before installing ceramic, stone, laminated wood and resilient flooring.

## PRODUCTS FOR WOODEN FLOORING

*Last but not least* are the solutions presented at MADE expo for wooden flooring. These are the ULTRABOND range of silylated-polymer adhesives with very low emission of volatile organic compounds (VOC) and exceptional viscosity, workability and ridge stability. One of the members of this family is ULTRABOND ECO S968 1K one-component, solvent-free adhesive for bonding all types of solid and pre-finished wooden flooring on any type of substrate, including heated screeds. Also highlighted at the exhibition was the low-odour, urethane oil finish ULTRACOAT OIL COLOR for colouring wooden floors in civil and commercial environments with medium to intense volumes of traffic.

The next edition of Mape expo will be held, at the Rho Exhibition Centre in Milan in 2019.

## HOW RADON ENTERS A HOUSE



mended levels. In most cases, however, they are not obligatory, apart from Sweden, Denmark and Switzerland, and when these levels are reached it is recommended to take remedial measures to reduce the concentration of radon indoors. A document published by the WHO in 2009, "WHO Handbook on Indoor Radon - a public health perspective", advised countries to set a limit in homes of 100 Bq/m<sup>3</sup>, and that it should never higher than 300 Bq/m<sup>3</sup>, and also recommended implementing effective policies to incentivise private homes to measure the level of radon and to adopt measures, where required, to reduce its concentration.

### EUROPEAN NORMS

In recent years, both individual states and the EU and WHO have issued norms and recommendations to reduce the level of concentration of radon gas to below certain reference values and have given specific indications for homes and places of work.

In 1990 the European Commission published Recommendation CEC 90/143, in which a reference limit value of 400 Bq/m<sup>3</sup> was recommended for homes. In 2009, following the results of numerous epidemiological studies that singled out the higher risk of contracting lung tumours following exposure to radon gas indoors, and the publication of the report "WHO Handbook on Indoor Radon: A Public Health Perspective", the EU acknowledged the indications in the European Directive regarding protection against radiation and introduced a reference level of a maximum of 300 Bq/m<sup>3</sup>. The previous level of 400 Bq/m<sup>3</sup> was abolished and, in the absence of national norms, it could no longer be taken as a reference level. On the 17<sup>th</sup> of January 2014 the Official European Gazette published Directive 2013/59/Euratom which revolutionised the field of ionised radiation, particularly for radon. The new European Directive established the new official limits for radon gas concentrations (a maximum of 300 Bq/m<sup>3</sup>) and for radiation given off by building materials. And so, following its publication in 2014, it became obligatory for all Member

# RADON PREVENTION AND PROTECTION

## HOW TO PROTECT A BUILDING FROM THIS GAS THAT OCCURS NATURALLY IN THE GROUND

Not very well known but always present. We are talking about radon, a naturally-occurring, colourless, odourless radioactive gas generated by the decay of radium, that is, by means of a process by which a radioactive substance is transformed spontaneously into a different substance, giving off radiation. Radium itself is produced by the transformation of uranium found in rocks, the ground and in water.

According to the WHO, the World Health Organisation, radon causes more than 3,000 deaths from pulmonary diseases every year. The problem was internationally acknowledged a number of years ago and, for the last two years, Europe has held a European Radon Day to heighten European countries' awareness of the dangers of radon. During the second edition, held last November, all the professional bodies and associations interested in this problem were invited to carry out activities and actions to sensitise public opinion through press

releases, campaigns, training courses and information aimed at encouraging European citizens to take appropriate measures to reduce the risk to their health caused by the diffusion of radon. Generated continuously by the earth's crust, particularly by volcanic rocks, tuff, Pozzolan and certain types of granite, radium can be found everywhere in various concentrations and the ground is the main source, from which radon gas propagates into our homes.

### THE INTERNATIONAL SITUATION

The unit of measure for radon radioactivity is the Becquerel (Bq) where one Becquerel corresponds to the transformation of one atomic nucleus per second. In Europe the average level is around 59 Bq/m<sup>3</sup>, while on a global level it is estimated to be an average of around 40 Bq/m<sup>3</sup>. There are also certain indication values available, even though they are not unequivocal at an international level, with certain countries declaring recom-



States of the EU to draw up a national radon plan.

THE SITUATION IN OTHER COUNTRIES

*United States.* Radon may be found at various levels of concentration in the United States. The EPA (United States Environmental Protection Agency) calculated that 21,000 people die every year in the United States from tumours provoked by radon. According to the EPA an indoor concentration level of radon higher than 4.0 pCi/L (148 Bq/m³) is considered to be particularly high and needs to be reduced. In the United States the concentration of radon is measured in picocuries per litre of air (pCi/L), which corresponds to 37 Bq/m³.

*Canada.* Adopted in 2008, the guidelines issued by the Canadian government set the indoor radon concentration limit at 200 Bq/m³ and corrective measures must be implemented every time the average annual radon level exceeds 200 Bq/m³ "in normally occupied areas". These areas are defined as any part of a building with radon in which people spend at least 4 hours every day, whether it is a home or a work environment.

*Australia.* The results of a national study on the concentration of radon in buildings carried out by ARPANSA, the Australian Radiation Protection and Nuclear Safety Agency, demonstrated that the average indoor concentration of this gas is around 11 Bq/m³, a very low level and only slightly higher than the level of radon in the air. The study, however, also revealed that in certain areas the levels are higher than 400 Bq/m³ and, in such cases, measures should be taken to reduce the risk of pulmonary tumours to occupants and the NHMRC (National Health and Medicine Research Council) recommends carrying out cleaning up operations if the average annual concentration level of radon in homes exceeds 200 Bq/m³.

INTERVENTION – THE ONLY REMEDY

The reduction techniques currently



ABOVE. The protection of a building against radon gas begins from its very foundations: an example of a German jobsite in different phases.

adopted work according to certain principles using passive systems, that is not mechanised, or active systems, or ones that consume energy. If radon is coming largely from the ground, the main aim of the reduction techniques adopted must be to impede or limit ingress of gas from the ground. To achieve this various techniques may be used, such as ventilating crawl spaces under the building, sealing all the openings in walls and floors in contact with the ground, pressurising the building or drawing off the gas from the ground under the building.

Sealing any cracks or fractures along the contact surfaces between the ground, walls and floor sitting on the ground is also a useful technique. The entire surface of the building may also be sealed by using a special membrane resistant to the passage of radon.

To prevent the presence of radon during the construction of a building, apart from ventilating the crawl spaces and constructing underground wells with ventilation channels around the building, a strong gas barrier may be inserted.

Countries	Existing buildings	Buildings to be constructed	Workspaces
Australia	200	200	1000
Austria	400	200	370/1110
Belgium	400		
Canada	200	200	
Denmark	200/400	200	400
Finland	400	200	400
France	N/A	N/A	N/A
Germany	250/1000	250	
Greece	400	200	400
Ireland	200	200	150 (schools) -200
Italy			500
Luxembourg	150	150	
Holland	N/A	N/A	N/A
Norway	200/400	200	200/400
Portugal	N/A	N/A	N/A
U.K.	200	200	400
Czech Republic	200	200	
Slovenia	400	200	
Spain	N/A	N/A	N/A
Sweden	200/400	200/400	400
Switzerland	400/1000	400/1000	400/1000
USA	150	150	150 (schools)

The international table shows the reference levels in Bq/m³ that should not be exceeded in homes and places of work. Most countries indicate a single value in the case of existing buildings, above which clean-up operations are suggested to reduce radon gas concentrations. In certain cases, however, there are two levels: in the case of the first level, if this value is exceeded, simple countermeasures need to be taken. If, on the other hand, the level of concentrations exceeds the higher level, it is recommended to take more drastic measures to reduce risk. In Austria, for example, two levels are indicated for places of work: 370 Bq/m³ as a monthly average and 1,110 Bq/m³ as a weekly average. In Switzerland and Sweden, on the other hand, two levels are set and it is obligatory to take measures if the upper limit is exceeded.



# RADON

## THE SOLUTIONS PROPOSED BY MAPEI

### PLASTIMUL RANGE

The Mapei Group proposes four products that protect buildings against radon gas rising up from the ground and create a barrier that is impermeable to gas certified by Dr. Kemski, expert office for Radon in Bonn (Germany): PLASTIMUL 1K SUPER PLUS, PLASTIMUL 2K SUPER, PLASTIMUL 2K PLUS and PLASTIMUL 2K REACTIVE.

The products from the PLASTIMUL range are used to waterproof the horizontal and vertical foundations in concrete and brickwork, such as basements, underground garages, water tanks, load-bearing walls, and reinforced concrete structures underneath isolating screeds.



#### PLASTIMUL 1K SUPER PLUS

PLASTIMUL 1K SUPER PLUS is certified as a passive barrier to radon gas thanks to its radon gas diffusion coefficient of  $7.81 \cdot 10^{-13} \text{ m}^2 \text{ s}^{-1}$ .

PLASTIMUL 1K SUPER PLUS is a one-component, ready-mixed, highly flexible, low-shrinkage, rapid-drying, high-yield, impermeable bitumen emulsion enriched with polystyrene beads and granules of rubber, which considerably increase its yield and leads to lower consumption rates per square metre.

#### PLASTIMUL 2K SUPER

PLASTIMUL 2K SUPER is certified as a passive barrier for radon gas thanks to its radon gas diffusion coefficient of  $1.5 \cdot 10^{-12} \text{ m}^2 \text{ s}^{-1}$ .

Plastimul 2K Super is a two-component, solvent-free, highly flexible, low-shrinkage, high-yield, impermeable bitumen emulsion with polystyrene beads. Once dry, which is quicker thanks to its content of fillerized hydraulic binders, it forms a highly flexible impermeable coating.

#### PLASTIMUL 2K PLUS

Thanks to its gas diffusion coefficient of  $4.47 \cdot 10^{-13} \text{ m}^2 \text{ s}^{-1}$ , it is a product certified as a passive barrier to radon gas. PLASTIMUL 2K PLUS is a two-component, solvent-free, highly-flexible, rapid-drying bitumen waterproofing emulsion containing cellulose fibres.

Once dry, a process which is more rapid thanks to the fillerized hydraulic binder contained in the product, it forms a highly-flexible waterproof coating.

#### PLASTIMUL 2K REACTIVE

Thanks to its gas diffusion coefficient of  $4.35 \cdot 10^{-13} \text{ m}^2 \text{ s}^{-1}$ , it is a product certified as a passive barrier to radon gas. PLASTIMUL 2K REACTIVE is a two-component, solvent-free, highly-elastic, eco-compatible, instant bitumen waterproofing emulsion applied by airless spray. It is characterised by its high rate of elongation ( $>1500\%$ ), high crack-bridging capacity, including at low temperatures, and its resistance to aggressive substances normally found in soil.





## MAPETHENE IMPERMEABLE MEMBRANES

Mapei Group also offers MAPETHENE impermeable membranes (available in Italy and other European countries) to provide protection against radon gas in structures below ground level. These products were recently presented at MADE expo 2017.

This is a complete range of self-adhesive bitumen membranes made from a mixture of bitumen and special additives sandwiched to a double-laminated film of high density polyethylene (HDPE). They have been developed to form an external impermeable barrier on masonry or reinforced concrete structures below ground level.

Apart from providing certified protection against radon gas, these membranes also offer other advantages:

- MAPETHENE LT and MAPETHENE HT membranes are cold-applied without the need for a blow-torch.
- They are easy to apply and installation is quick and simple.
- They adhere perfectly to substrates thanks to the use of special MAPETHENE PRIMER and the winter version MAPETHENE PRIMER W.
- They have a vulcanized side strip to improve the seal at overlaps.
- Pre-formed membranes: more control over their thickness during production and total uniformity in the mix.

The MAPETHENE range is a versatile product system suitable for use by both workmen used to handling traditional bitumen membranes and workers used to other types of product. The system is so simple to apply that excellent results are always guaranteed.

## ADVANTAGES:



**PROTECTION AGAINST RADON GAS**



**COLD-APPLIED**



**QUICK AND SIMPLE**



**PERFECT ADHESION**



**SELF-ADHESIVE MEMBRANES**



### MAPETHENE LT

Self-adhesive bitumen membrane suitable for application at temperatures down to  $-5^{\circ}\text{C}$  for making structures below ground level impermeable. It has a radon gas diffusion coefficient of  $1.49 \times 10^{-13} \text{ m}^2\text{s}^{-1}$ .



### MAPETHENE HT

Self-adhesive bitumen membrane suitable for application at temperatures up to  $+45^{\circ}\text{C}$  for making structures below ground level impermeable. It has a radon gas diffusion coefficient of  $4.04 \cdot 10^{-13} \text{ m}^2\text{s}^{-1}$ .

*Its special formulation means it can be applied at both low and high temperatures.*



Application at **low temperatures down to  $-5^{\circ}\text{C}$**



Application at **high temperatures up to  $+45^{\circ}\text{C}$**



# MADE EXPO



# POLYGLASS

## CUTTING-EDGE TECHNOLOGY FOR WATERPROOFING SOLUTIONS OF THE FUTURE

A waterproofing solution that respects the environment, cares about the future of our planet and focuses on eco-sustainability. These concepts formed the basis of how Polyglass Spa – one of the Group's subsidiary companies – approached MADE expo 2017.

At the Milan exhibition, Polyglass presented waterproof systems aimed at improving the insulation coefficient and

energy efficiency of building envelope: solutions with high solar reflectance and systems for green roofs, pitched roofs, wooden structures and for roofs refurbishment. There were also the more traditional solutions for reservoirs (artificial reservoirs and aqueducts), waterproofing roads, bridges and viaducts, driveable roofs, foundations and terraces and balconies.

## COOL ROOF WATERPROOF SYSTEMS AT THE SERVICE OF THE ENVIRONMENT

The exhibition was also the occasion to display a model developed and built in collaboration with the Luav Architecture University of Venice, which demonstrated the advantages and potential offered by cool roof technology in terms of energy efficiency, costs, less pollution and also of products' service life boosting. Cool roofs are waterproofing systems with the capacity to keep the temperature of surfaces lower, even when exposed to strong, direct sunlight.

Polyglass manufactures a wide range of cool roof waterproofing systems which have all been tested by the EELab - Energy Efficiency Laboratory - of the Italian University of Modena and Reggio Emilia.

A research project carried out in collaboration with the University of Padua, that led to the development of the POLYSTRADA line for waterproofing, strengthening and distributing loads generated by road traffic in areas where the road surface needs to be repaired, was also presented.



## IN THE SPOTLIGHT

Numerous products were highlighted at MADE expo 2017 and, amongst these, let's remember POLYSINT SUN REFLECT, a white-coloured, fibre-filled liquid membrane in water emulsion made from special synthetic resins with high solar reflectance (83%), high thermal emissivity (91%) and a solar reflectance index (SRI) of 105 for concrete and polymer-modified distilled bitumen membranes.

This product creates a barrier with high reflectance to UV rays which lowers the service temperature through the whole section of the system, thereby protecting the entire insulating package and guaranteeing the highest energy savings.

The MAPEPLAN line of synthetic membranes was also under the spotlight. These included MAPEPLAN T M SMART WHITE, which reduces the surface temperature of roofs by more than 50% compared with a dark coloured roof, and MAPEPLAN TB, a waterproof synthetic membrane made from TPO/FPO flexible polyolefin, which is highly resistant to UV rays and aggressive atmospheric agents and is designed for dry-applied systems with extra ballast, such as hanging garden roofs.

We would also like to mention that the MAPEPLAN line of synthetic membranes has also certified the Environmental Product Declaration (EPD) – according to ISO 14025 and EN 15804 standards – as proof of their commitment to the use of transparent, honest communication.







# AN INNOVATIVE SOLUTION FOR EXISTING INDUSTRIAL BUILDINGS

## PREFABRICATED PANELS AND WATERPROOF MEMBRANES

The Niccolai Trafile Srl works in Pistoia, an Italian company that has been building drawing machines and equipment used to manufacture pasta and snack foods since the beginning of the last century, needed renovation work to be carried out on the roof.

The building is a typical example of industrial buildings constructed in the 1980's with a Y-shaped beam structure. The intervention included replacing the asbestos-cement roof and improving the insulating capacity of the roof.

The structure also needed to be upgraded to meet new anti-seismic regulations

and to ensure the roof remained watertight during sudden, heavy downpours, which nowadays are becoming more frequent.

The main priority was to carry out the work without endangering or interrupting the production activities below and the structural elements had to be replaced without leaving the various departments in the factory without cover. The intervention was completed successfully thanks to an innovative solution comprising a prefabricated fibreglass panel insulated according to the specified requirements and waterproofed with a MAPEPLAN T

Af 15 membrane by Polyglass.

MAPEPLAN T Af is a synthetic waterproofing membrane made from FPO (flexible polyolefin), which is produced by means of a multi-extrusion coating process using high quality raw materials, reinforced with glass fibre mat sandwiched to non-woven polyester felt on the underside. It weighs 300 g/m<sup>2</sup> and complies with EN 13956 standards.

The prefabricated panels, called Coprimax, had an incorporated tubular metallic structure which was fastened to the central part of the Y-shaped beams, as prescribed by anti-seismic norms and





## MAPEPLAN T AF 15

Synthetic membrane for waterproofing roofs in flexible polyolefin (FPO) produced by means of a multi-extrusion coating process using high quality raw materials. Reinforced with glass-fibre mat sandwiched to the lower non-woven polyester felt backing (200 g/m<sup>2</sup>). MAPEPLAN T Af 15 complies with EN 13956 standards.

It is fully bonded and may be left exposed. Resistant to UV rays and aggressive atmospheric agents. May also be installed in direct contact with non-compatible materials. MAPEPLAN T Af 15 has excellent mechanical properties, is easy to handle and install and is easy to weld. Helps earn award points towards **LEED** certification.



**FACING PAGE.** The roof upon completion of the work and before work commenced.  
**TO THE LEFT.** The various work phases.  
**TO THE RIGHT.** An internal view upon completion of the work and before work commenced.



standards. Accessories from the MAPEPLAN T line were used to form water-tight supports for the photovoltaic panels which were to be installed afterwards and to prevent the panels and beams from being perforated.

The waterproof membrane is heat-welded to form a seamless, water-tight roof (the "water outside solution").

Once the work had been completed, the finished roof had a seamless surface with a "smart white" finish, which reflects UV rays and lowers the temperature inside the factory by more than 45%.

This characteristic, combined with the new insulating capacity of the roof with no thermal bridges, has led to around a 70% reduction in heating costs for the factory, as well as completely stopping any further deterioration of the beams which, with this new roof, are protected from aggressive atmospheric agents.

The white internal surface of the panel makes the factory brighter and has reduced lighting costs.

Apart from the roof, improvements were also made on the structure with special mechanical fasteners which have reduced the weight by around 60% to bring it in line with the new anti-seismic regulations.

Thanks to the improvement in insulation



capacity and the work carried out to upgrade the roof to meet anti-seismic requirements specified by the Civil Engineering Department of Public Works, the intervention designed and completed as described above also qualified for a government incentive, with a tax break of around 65%.

### TECHNICAL DATA

**Industrial Factory,** Pistoia (Italy)

**Period of Intervention:** September 2014

**Client:** Niccolai Trafilè srl

**Main Contractor:** Coprimax srl, Lamporecchio (Pistoia, Italy)

**Intervention by Polyglass:** supply of synthetic membranes to waterproof the roof

**Coordinators:** Alessio Morelli and Mauro Redemagni (Polyglass)

### POLYGLASS PRODUCTS

MAPEPLAN T Af 15

For further information, see [www.polyglass.com](http://www.polyglass.com)







# PIAZZA VENEZIA ROME

THE MAPESTONE SYSTEM FOR THE  
RENOVATION OF ONE OF THE MOST FAMOUS  
(AND BUSIEST) PIAZZAS IN THE WORLD

Built on the ruins of other works, it has always been one of the most popular sites for tourists visiting Rome. We're talking about Piazza Venezia, considered one of the symbols of the Eternal City. It lies at the foot of Campidoglio (Capitol Hill) at the crossroads between three important roads in the centre of Rome (Via dei Fori Imperiali, Via del Plebiscito, and Via del Corso) and is a real goldmine in the history of art and archaeology.

As it stands now, Piazza Venezia is the result of work carried out between the end of the 1800's and the start of the 1900's following the demolition or restoration of previous works.

Amongst the buildings that have remained intact in Piazza Venezia there is Palazzo Venezia which was originally the home of the Pope.

The most important architectural feature in Piazza Venezia is the Vittoriano complex, which periodically hosts art exhibitions and is the permanent home of the Sacrario delle Bandiere Military Museum. Opposite the Palazzo in Piazza Venezia stands the Assicurazioni Generali building, whose essential lines capture those of its historical neighbour. One of the original features of the Piazza still standing is Palazzo Bonaparte, on the northern side, a former residence of Napoleon's mother.

Important renovation work is currently being carried out on the paving in the Piazza to make it more functional and suitable for the high volume of traffic that passes through it on a daily basis.

## **A RADICAL BUT NECESSARY INTERVENTION**

The first site for the complete renovation of the paving in Piazza Venezia was opened at the end of March last year, just next to Piazza Madonna di Loreto on the Fori Imperiali side of the Piazza.



This intervention was considered absolutely necessary by the Rome City Council in order to eliminate age-old problem of depressions and holes in the road surface and pavement that have been bothering drivers and pedestrians who use the Piazza for a long time.

The work, commissioned by SIMU (the Council's Infrastructure Development and Urban Maintenance Department), is just the first phase of a more articulated, extraordinary maintenance plan for the whole of Piazza Venezia. In order to identify the most appropriate way of tackling the problem, a core-sampling campaign was carried out which highlighted the need for more in-depth structural work.

The intervention involved the demolition and complete rebuild of around 3,000 m<sup>2</sup> of existing road foundations, repair work on the cobblestones and the realignment of the paved edging around the various sectors of the Piazza.

So, for the time being at least, the intervention discussed in 2014, to remove the lava stone blocks that cover around 170,000 m<sup>2</sup> of the Piazza and replace them with asphalt, has been abandoned.

### THE WINNING INSTALLATION SYSTEM THAT RESISTS THE RIGOURS OF TIME

With Mapei Technical Services on site to follow the work, the MAPESTONE SYSTEM was the "turnkey" solution provided for the new paving in the Piazza, a system that ensure work remains more durable over the years and is resistant to de-



icing salts and freeze/thaw cycles.

A system designed also to overcome the problem of mechanical stresses, as in this case. In fact, the constant passage of cars and heavy goods vehicles generate compressive stress (the weight of vehicles) and tensile stress (manoeuvres carried out by vehicles) that cause subsidence in weak and irregular substrates on which the blocks of stone that make up the paving have been installed.

The new substrate is formed by a slab made from class Rck 350 N/mm<sup>2</sup> cast concrete reinforced with 20 cm electro-welded mesh set at a medium pitch.

The paving, on the other hand, is in basoli paving stones measuring 180 x 80 x 17 cm, with each one weighing around





**TO THE LEFT.** A layer of MAPESTONE TFB 60 mortar was spread over a substrate of cast in situ concrete floor slabs.

**ABOVE.** The flooring, made up of large paving stones, was installed on the floor slab after applying a coat of bonding slurry. The grout lines were then filled with MAPESTONE PFS 2.

600 kg, and smaller blocks in various sizes ranging from 12 to 15 cm.

The stone slabs were laid and grouted with MAPESTONE TFB 60 and MAPESTONE PFS 2 ready-mixed cementitious mortar with high compressive strength and exposure class XF4 according to EN 206-1:2006, particularly suitable for its resistance to de-icing salts and freeze/thaw cycles.

The combined use of these products creates a monolithic structure which hardly deteriorates over the years.

A layer around 5 cm thick of MAPESTONE TFB 60 was spread directly over the concrete slab and, before repositioning the paving, the substrate was carefully hydro-blasted to remove all the cement laitance, oil, grease and crumbling and detached parts.

Immediately after spreading and levelling off the MAPESTONE TFB 60, a layer of bonding slurry made from water, cement and PLANICRETE was applied using the "wet-on-wet" technique before tamping the slabs into place. The gaps between the slabs (around 1 cm, as per the original layout of the paving) were then filled with MAPESTONE PFS 2, which was mixed only with water in a vertical mixer directly on site.

Higher durability of the finished paving, less maintenance



## MAPESTONE SYSTEM

The MAPESTONE SYSTEM represents a "turnkey" solution to obtain durable, long-lasting paving resistant to freeze-thaw cycles. Mapei has specifically developed pre-blended, exposure class XF4 cementitious products made from special binders and selected aggregates, which need only to be mixed with water, to make architectural stone paving which is also suitable for vehicles.

The system is made up of MAPESTONE TFB 60, MAPESTONE PFS PCC 2 and MAPESTONE PFS 2. These special mortars do not crumble, they remain stable over the years and require no maintenance. Used in combination to create architectural stone paving (blocks, porphyry, cobbles, slabs and other formats), these products create a monolithic structure with long-lasting durability.



and/or repair work, no wasted material and quicker installation times: these are the main economic advantages of the MAPESTONE SYSTEM, highly appreciated, as in this case, by operators and clients alike.

While waiting for the rest of the Piazza to be renovated (new tenders to complete work on the surrounding road network were issued at the beginning of the year), the MAPESTONE SYSTEM really has "laid the foundations" for the overhaul of this symbolic piazza in the capital city.

### TECHNICAL DATA

**Piazza Venezia, Rome (Italy)**

**Construction Period:** XV Century

**Period of Intervention:** 2016

**Intervention by Mapei:** supply of products for the installation of architectural stone paving

**Client:** Rome City Council – Department of Infrastructure Development and Urban and Road Maintenance

**Designer and Works**

**Director:** Daria Giura

**Main contractor:** Italteconobeton Srl, Roma

**Paving Contractor:** Maurizio

Masi Selciati, Ciampino (Rome)

**Site Manager:** Fabrizio Liberati

**Mapei Distributor:** SDB per l'Edilizia Srl, Grottaferrata (Rome)

**Mapei Coordinators:** Maurizio Fiore and Emiliano Ligios (Mapei SpA)

### MAPEI PRODUCTS

Mapestone TFB 60 and Mapestone PFS 2

For further information see [www.mapei.com](http://www.mapei.com)



# A NEW AUDITORIUM

INSTALLATION OF WOODEN FLOORING IN A MULTI-FUNCTIONAL  
STRUCTURE THAT HAS FINALLY BEEN OPENED TO THE GENERAL PUBLIC











After years of legal wrangles, building companies going bankrupt, red tape and costs that went well above the initial budget, the first real concert hall in the entire Province of Monza and Brianza (in Northern Italy) has been opened.

Last January, after almost 12 years of work, the Auditorium in Seregno, a city in the industrious Brianza area not far from Monza near Milan, was finally inaugurated.

Redevelopment work on Risorgimento Plaza, where the Auditorium was built, had already started back in 1995, when the plan for the new Town Hall had been awarded to a team of designers headed by the Portuguese architect Alcino Peixoto Soutinho.

Over the following years, successive elected councils decided on a new project that included a concert hall below ground level, a two-storey car-park for 300 vehicles, new council chambers and redevelopment work on the piazza itself and the surrounding roads.

However, due to a series of errors, misunderstandings and injunctions, the piazza became an interminable building site and only recently the work was completed.

### STRUCTURE OF THE MULTI-PURPOSE CONCERT HALL

The entrance to the Auditorium is on the same level as the piazza opposite and has a triangular form when viewed from above. It is covered by a surface with a double-wave form in wood and glass, with external windows in zinc and steel pillars.

**LEFT.** The glass entrance and the multi-functional concert hall equipped with 390 seats.

**ABOVE.** The screeds were treated with ECO PRIM PU 1K consolidating and waterproofing primer.

**IN THE MIDDLE.** ULTRABOND ECO S940 1K eco-compatible adhesive was recommended to install the wooden flooring.

**BELOW.** After installing the wooden planks they were treated with ULTRACOAT EASY PLUS transparent, protective lacquer.

The main architectural feature of the part of the structure above ground level is glass, which gives it a “softer” visual impact on the piazza and allows the park behind the Auditorium to be on view.

The glass entrance leads on to the foyer and the main, multi-functional concert hall. The main hall, dressed entirely in maple wood, has perfect acoustics. The hall is a flexible 450 m<sup>2</sup>, that is, it can be transformed into a concert hall, an events area or an art gallery.

An automatic system allows the more than 390 seats to be dismantled and hidden in just 30 minutes, thereby increasing the space available and adapting it to different types of events. The modular 120 m<sup>2</sup> stage has a 6 metre wide screen for projecting films.



**ABOVE.** The foyer and entrance to the main hall.

## MAPEI'S HANDIWORK WITH WOODEN FLOORING

To install the wooden flooring, the company awarded the contract proposed the use of Mapei products to the designers and client, not only for their high quality, but also for their certified characteristics of eco-sustainability.

The first work was carried out on the cementitious screed, which had a level of residual moisture above the maximum recommended limit for installing wood, and it was recommended to treat the surface with ECO PRIM PU 1K one-component, moisture-hardening polyurethane primer with very low emission of volatile organic compounds (VOC) to consolidate and waterproof the substrate.

The cracks and gaps in the installation bed were repaired with EPORIP two-component epoxy adhesive.

At this point, wooden flooring was installed in the multi-functional events hall, the foyer, the bar and the adjoining council chambers. Mapei Technical Services recommended using an eco-sustainable installation system, ULTRABOND ECO S940 1K, a one-component, solvent-free, silylated polymer-based adhesive with very low emission of volatile organic compounds (EMICODE EC1 R Plus).

This adhesive sets to foot traffic after around 12 hours and

wooden floors can be polished after 3 days.

The intervention was completed by treating the planks of wood with ULTRACOAT EASY PLUS, a one-component water-based lacquer with very low emission of volatile organic compounds (EMICODE EC1), which gives floors subjected to medium to high volumes of foot traffic a high level of resistance to wear and abrasion. This particular lacquer is also highly transparent and gives wooden floors a lovely warm finish.

### IN THE SPOTLIGHT

#### ULTRABOND ECO S940 1K

One-component, solvent-free adhesive certified by GEV as a product with very low emission of volatile organic compounds (EMICODE EC1 R Plus).

ULTRABOND ECO S940 1K is suitable for installing all types of pre-finished plywood flooring and solid wood flooring. Easy

to apply with has excellent rib stability, it has 20-30% higher yield than traditional two-component adhesives thanks to its low viscosity and good spreadability. Helps earn up to **3 points** towards **LEED** certification.



## TECHNICAL DATA

**Auditorium and Council Chambers,**  
Seregno (Italy)

**Construction period:** 2014-2016

**Period of intervention:** 2015-2016

**Intervention by Mapei:** supply of products to prepare the substrates and install and finish wooden flooring

**Project:** Franco Greco

**Client:** City Council of Seregno (Italy)

**Works Directors:** Franco Greco and Renzo Perregri

**Main contractor:** Costruzioni Perregri srl

**Flooring contractor:** Biffi

**Mapei Coordinators:** Andrea Peli, Andrea Serafin, Andrea Lodi and Alessandro Sacchi (Mapei SpA)

## PRODOTTI MAPEI

Substrate preparation: Eco Prim PU 1K and Eporip

Installation of wooden flooring: Ultrabond Eco S940 1K

Finish: Ultracoat Easy Plus

For further information see [www.mapei.com](http://www.mapei.com)



# Ultrabond

Bring the sky into the room.



**Ultrabond Line**,  
for a perfect bond to guarantee **hold**,  
**quality** and **respect for the environment**  
with **every type of parquet**.



Learn more on [www.mapei.com](http://www.mapei.com)





# REWE MARKET COLOGNE

JUST A FEW MONTHS TO  
TRANSFORM AN OLD WAREHOUSE  
INTO A SUPERMARKET

As soon as you walk into the market you can see an old, flame-red tractor that has been turned into a market stall selling fruit and veg. We are in the new Rewe supermarket situated in one of the covered shopping arcades in Cologne, the Opernpassagen.

In just 6 months a large warehouse has been transformed into a supermarket; 2,200 m<sup>2</sup> arranged over two storeys offering its clients around 20,000 different items from all over the world.

Special care has been taken over the interior of the supermarket, with made-to-measure wooden shelves, brick-dressed walls and a bespoke lighting system and colour scheme.

Rewe, an important German group which has been operating in the large distribution sector for a number of years, also decided to add their "Made by Rewe" space alongside the supermarket, a smaller area of around 200 m<sup>2</sup> with special

dishes prepared on site to be cooked later at home, or directly in the shop using one of the open cookers available. An innovative twist to the supermarket theme, which the owners and designers hope to turn into a commercial franchise to be exported all over Germany.

## STYLE AND FUNCTIONALITY

The complete renovation of the internal areas had to be carried out according to a very tight, non-negotiable schedule (6 months) so that the fitters had enough time to install all the stalls and shops. For the floors, Rewe didn't want the usual type normally used in supermarkets; they were looking for something different.

Mapei Technical Services proposed a line developed specifically for showrooms, supermarkets, shopping centres and industrial areas in general: the ULTRATOP system, a highly decorative solution particularly resistant to abrasion. The ULTRATOP coating system guarantees that surfaces remain level and free of cracks over the years and gives even large surface areas a sense of matter and visual continuity.

Once the substrate was cured and dry, the surface was treated with a coat of PRIMER SN two-component, solvent-free epoxy primer. It was applied using the wet-on-wet technique and then broadcast with QUARTZ 1.2 to create a surface with





1



2

**LEFT.** The entrance to the Rewe supermarket along the Opernpassage. The rubber tiles were bonded with ULTRABOND ECO V4 SP.

**PHOTO 1.** The surface was broadcast with QUARTZ 1.2 on fresh PRIMER SN.

**PHOTO 2.** ULTRATOP self-levelling mortar was applied with a pump.

**PHOTOS 3 and 4.** Images of the interior of the supermarket once work had been completed.

better grip so that the ULTRATOP system would adhere perfectly.

The next step was to apply a layer of anthracite ULTRATOP self-levelling mortar.

The floors along the corridors were decorated with small, coloured rubber tiles (160 m<sup>2</sup>), which were installed using eco-compatible products, as specified by the client: Mapei Technical Services recommended using ULTRABOND ECO V4 SP multi-purpose adhesive in water dispersion with very low emission of volatile organic compounds (VOC).

The Rewe chain was highly satisfied with the results: in fact, visiting managers from other supermarkets in the chain often ask for information on the coating system used!

## IN THE SPOTLIGHT

### PRIMER SN

Two-component fillerized epoxy primer specifically formulated for treating surfaces before applying epoxy and polyurethane resin for the MAPEFLOOR SYSTEM and self-levelling cementitious mortar for THE ULTRATOP/ULTRATOP LIVING SYSTEM. May be applied with a roller, metal spreader or smooth rake and,

if necessary, may be mixed with QUARTZ 0.5 to improve adhesion of the successive resin coating products. Helps earn up to **2 points** towards **LEED** certification.



**TECHNICAL DATA**  
**Rewe Opernpassagen**  
**Supermarket, Cologne**  
(Germany)

**Year of Construction:** 2014

**Period of Intervention:**  
2014

**Intervention by Mapei:**  
supply of products to make  
floors and install rubber tiles

**Client:** Rewe Markt GmbH

**Flooring Contractor:** Blome  
Bodenbelagkonzepte

**Mapei Coordinators:** Tim  
Woltering and Tom Schlag  
(Mapei GmbH)

## MAPEI PRODUCTS

Coating floors: Primer SN,  
Quartz 1.2 and Ultratop

Bonding rubber tiles: Ultrabond  
Eco V4 SP

For further information on  
these products visit our  
website at [www.mapei.de](http://www.mapei.de)  
and [www.mapei.com](http://www.mapei.com)



3



4





# SERBIAN PAVILION AT THE 2016 VENICE BIENNALE

INTENSE BLUE AND A STEEP, CURVED SURFACE: THE CHALLENGE FACING THREE YOUNG SERBIAN ARCHITECTS

The Venice International Architecture Exhibition has been held every two years since 1980 in the 29 pavilions standing in the "Giardini", the Gardens, the Arsenal and in the ancient centre of the city. The 15<sup>th</sup> edition of this important event was held from the 28<sup>th</sup> of May to the 27<sup>th</sup> of November 2016, with 88 participants from 37 different countries.

The theme chosen by the director of the exhibition, Alejandro Aravena, was "Reporting from the front" and the aim was to show visitors what it means to improve the quality of life while working at the limit, in difficult conditions and facing impelling challenges. Or what it takes to be on the front line trying to conquer new territories, in a difficult time such as ours. After a lengthy selection process promoted by the Republic of Serbia Ministry of Culture and Information, the project chosen to represent the country from amongst the other 35 entrants at the Architecture Biennale was the one developed by three young architects: Ana Šulkić, Stefan Vasić and Igor Sjeverac. Entitled "Heroic: Free Shipping", it was a reflection on the plight of young architects trying to enter their particular sector of work.

## CREATING AN ARTISTIC INSTALLATION

The Serbian pavilion was in the same building that also housed exhibits from Poland, Egypt and Romania.

As soon as visitors entered, they were welcomed by a reconstruction of the inside of the hull of a ship: the bright, electric blue floor was curved and divided along the centre and lit up by natural light flooding in from a large, glass skylight. According to the authors, the installation,

with its blue ramps and white walls, is a metaphor of the living and working conditions in which the young architects find themselves on a daily basis: between dreams and reality, reason and emotion, realism and hope.

The installation was created by dressing a curved, wooden frame with OSB (Oriented Strand Board) panels, that is, panels made from layers of wood chips pressed and held together by a binder.

The surfaces of the installation were painted in a bright colour with a shiny finish, as if to resemble metal, so that it completely covered all the gaps and imperfections in the panels. These requirements presented quite a challenge for the installation team, which wanted to work with products that guaranteed a high quality colour finish with a shiny, non-slip coat, but which also had a high level of resistance to abrasion in order to withstand the intense foot traffic it was

exposed to every day.

Mapei products and systems were chosen for the resin coating. Before starting the intervention, the recommended products had been successfully tested on a small area of the floor, demonstrating their excellent adhesion properties, strength and beauty.

The first step was to carefully sand the entire surface to make it even and smooth. After vacuuming off all the dust and cleaning the substrate, all the cracks and joints were grouted with ADESILEX PG1 epoxy adhesive with a thixotropic consistency.

To ensure the resin coating formed a durable bond with the wooden substrate, a metal trowel was used to apply a coat

**ABOVE.** MAPECOLOR PASTE was used to obtain an intense blue colour.

**BELOW.** The skeleton of the structure, made from planks of wood, was then lined with OSB panels.





**IN THESE PICTURES.** After preparing the substrate, MAPEFLOOR I 300 SL resin coating mixed with ADDITIX PE powder and MAPEFLOOR FILLER was applied to form a highly resistant, non-slip finish.

oured with MAPECOLOR PASTE colouring paste (RAL 5002).

The surface was broadcast again; after the hardening of the resin all the dust was removed and, using a trowel as previously, a second coat of MAPEFLOOR I 300 SL coloured with MAPECOLOR PASTE was applied. This time, however, to give the surface a non-slip finish, apart from the ADDITIX PE thickening agent, the MAPEFLOOR I 300 SL was also mixed with MAPEFLOOR FILLER, a special, ultra-fine filler with very high resistance to wear with the capacity to form a non-slip finish.

The intervention in the Serbian Pavilion was a challenge for both the architects, who managed to create their installation just as they had imagined, as well as for the installation company, which was able to successfully meet all the requirements of the designers.

A result that was made possible thanks also to the excellent performance characteristics guaranteed by the Mapei products used.

#### TECHNICAL DATA

**The Serbian Pavilion at the Biennale Architecture Exhibition, Venice (Italy)**

**Year of installation:** 2016

**Period of intervention:** 2016

**Intervention by Mapei:** supply of products for the resin coating on the flooring of the installation

**Design:** Ana Šulkić, Stefan Vasić and Igor Sjeverac

**Client:** Republic of Serbia Ministry of Culture and Information

**Flooring contractors:** PR Loft, Vladimir Inić

**Mapei coordinator:** Uroš Jovanović (Mapei SRB)

#### MAPEI PRODUCTS

Preparation of substrates: Adesilex PG1, Primer SN and Quartz 0.25

Resin coating: Additix PE, Mapecolor Paste, Mapefloor Filler and Mapefloor I 300 SL

For further information on these products see our website at [www.mapei.rs](http://www.mapei.rs) and [www.mapei.com](http://www.mapei.com)

Our thanks go to Mapei SRB d.o.o. for their kind permission to use this article which first appeared in Svet Mapei No. 18/2017.



of PRIMER SN, two-component epoxy primer, fillerized with QUARTZ 0.25 to act as adhesion primer.

In order to apply resin coating on steeply sloping or vertical surfaces, as in this case, Mapei Technical Services recommended mixing the primer with the thickening and thixotropic agent ADDITIX PE. This product is a very light powder made from synthetic fibres and is used to increase the viscosity and thixotropy of epoxy-based and polyurethane-based resin products. The following day, the excess quartz sand was vacuumed off, the surface was sanded and all traces of dust and debris were also vacuumed off. Once this phase had been completed, the next step of the intervention was to use a metal trowel to apply MAPEFLOOR I 300 SL, a two-component, neutral-coloured epoxy formulate for industrial floors. In this case, too, the MAPEFLOOR I 300 SL was admixed with ADDITIX PE powder, as well as col-



# MAPEFLOOR® COMFORT SYSTEM

Liquid matter that turns into seamless, functional and stylish solutions for the creation of soundproof flooring, characterised by an extremely high level of comfort underfoot.



GOOD REDUCTION  
OF NOISE



HIGH LEVEL OF  
COMFORT UNDERFOOT



LOW VOC  
EMISSIONS

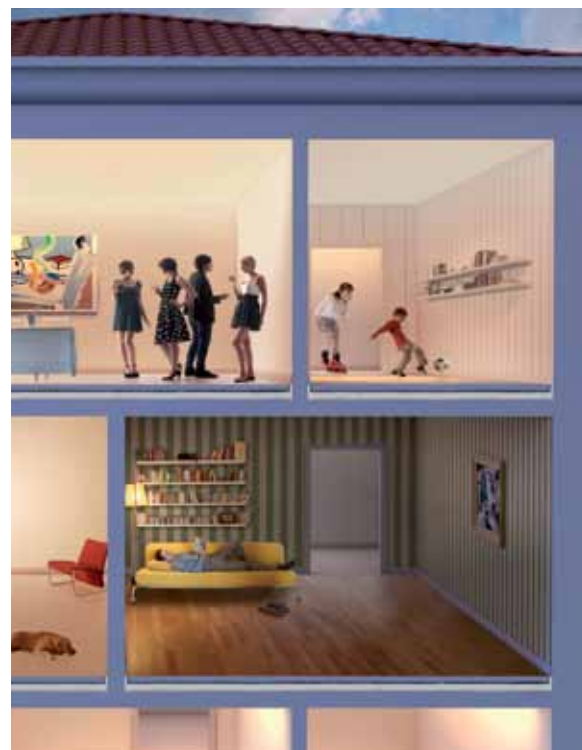


EASY TO CLEAN  
AND MAINTAIN



Learn more on [grouts.mapei.com](http://grouts.mapei.com)





# SOUNDPROOFING AND LIVING COMFORT

LIVING, STAYING AND WORKING IN ACOUSTICALLY COMFORTABLE SURROUNDINGS HAS BECOME AN INCREASINGLY IMPORTANT FACTOR

When we talk about insulation we normally think about thermal insulation, but protection against noise has now become an important factor in order to reach a good level of comfort in our homes, our places of work or when we are on holiday. The types of noise that disturb us may come from an external source (such as traffic, bars and restaurants open during the night or machinery) or from an internal source (such as the echo of heels on floors, voices from our neighbours or noisy plant systems) and have a detrimental effect on the acoustic comfort of the surroundings we live and work in. Over time, this sensation affects our sense of well-being, which can make us irritable and, in the long run, cause stress and make us feel more tired. Each country has its own specific set of regulations to determine the passive acoustic requirements of buildings according to their area of use – schools, hospitals, homes – and according to the type of noise.

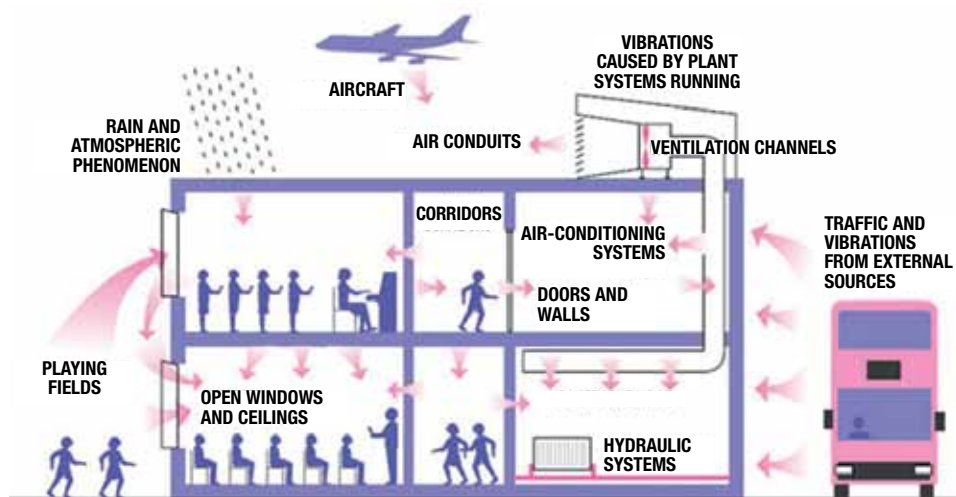
Norms and standards indicate the values (minimum and maximum) in Decibels (dB) for various types of noise

inside buildings, such as the noise from neighbouring homes, noise from external sources, noise caused by footsteps or noise from plant systems in buildings, such as bathroom drains and lifts.

## HOW TO CHOOSE A SOUNDPROOFING SYSTEM

When a sound-wave hits a surface, part of its energy is dissipated in the form of thermal energy in the wall, part of it is transmitted through the wall and is propagated in the adjoining room and part of it is reflected back towards the area it came from. It stands to reason that, the higher the soundproofing capacity of a material, the more energy it is able to absorb and neutralise. Soundproofing makes it difficult for noises to propagate by using two types of material: soundproofing materials, which have the capacity to stop noise and reflect the noise back towards the area it came from (thus avoiding the noise to spread towards the outside), and sound-absorbing materials, which can completely absorb sound energy.





**TO THE LEFT.** Noises in our homes come from numerous sources; from outside (traffic, passing aircraft, atmospheric phenomena) or from inside the home (footsteps, televisions, conversation, air-conditioning systems, etc.). They all play a part in reducing our wellbeing and living comfort.

It is important, therefore, to highlight the difference between sound absorption and soundproofing, which often cause confusion: sound-absorbing materials are chosen to improve the quality of a room's acoustics (such as a concert hall), whereas materials with soundproofing characteristics are used to protect living spaces from external noises (noises generated in a home, for example). To guarantee good quality acoustics and prevent echoes, it is recommended to use sound-absorbing materials which stop sound waves from spreading: to get the best results these are used in combination with soundproofing materials. It is also important to consider a room as a system made up of several different parts: it would not be enough, for example, to soundproof just a false ceiling or one of the walls, because the other "weaker" parts of the house would allow the sound to be channelled along a different route (floors, walls, ceilings).

## OUR SURROUNDINGS: HOW THEY MAY BE SOUNDPROOFED

All walls, ceilings, floors and plant systems that could potentially cause noise must be insulated and made "inoffensive".

**Walls.** Apartment blocks, offices and hotels all have adjoining walls between different rooms through which sound may be transmitted.

**Ceilings.** Noise may also be transmitted through ceilings and, to mitigate this phenomenon, a false ceiling may be installed made from sound-absorbing panels recommended for both soundproofing and thermal insulation purposes. Since the noise of footsteps from rooms above us could propagate along walls, to increase the effectiveness of a false ceiling, the internal walls closest to the ceiling must also be included in the intervention.

**Floors.** In homes and buildings used for hospitality purposes, it is often necessary to limit the noise from

footsteps: floors, therefore, need to be acoustically insulated by inserting soundproofing material within the flooring system. The most common methods are to lay a thermo-acoustic mat or a layer of felt to help muffle the noise.

**Plant systems.** Plant equipment that is running constantly, such as central heating or air-conditioning systems, can sometimes be noisy and may cause disturbance, particularly in the bedroom areas. Plant systems which function intermittently or for brief periods, such as drains and lifts, may also cause disturbance. This type of noise may be reduced by insulating pipework and air conduits with soundproofing materials.

Source	Sound level (dB)	Sensation
Rocket being launched	170	Unbearable
Aircraft taking off at 30 m	140	
<b>Pain threshold</b>	120	
Pneumatic hammer	110	Very noisy
Nightclub	100	
Underground railway	90	
Intense traffic	80	Noisy
Radio at high volume	70	
Office noise	60	
Normal conversation	50	Silent
Library	40	
Quiet room	30	
Whispering	20	Very quiet
Rustle of leaves	10	
<b>Hearing threshold</b>	0	

**ABOVE.** Various sources of noise with their relative levels of intensity and the sensation felt by humans.

# ACOUSTIC COMFORT IN THE HOTELS SECTOR

AN INTERVIEW WITH THE ARCHITECTS FROM THE ARKIGEO AND CMD STUDIO LINE DESIGN STUDIOS

Amongst the most important factors when choosing a hotel are silence and peace. For a hotel, clients can become regular users if it also offers surroundings which are quiet and peaceful. So we wanted to ask the architect Massimo Casadei from the Arkigeo Design Studio in Cervia-Milano Marittima (Italy) and from CMD Studio Line in Cesena, who had followed the soundproofing work carried out on the Hotel Brasil in Milano Marittima (Italy), how they had solved the problem. The hotel itself had been completely refurbished around 10 years ago with Mapei solutions and an external thermal insulation system had been installed, transforming it into a cutting-edge building in terms of comfort and energy efficiency.

**The sensation of acoustic comfort inside hotels is very important because it creates a more welcoming atmosphere and allows clients to have a more pleasant stay. How did you tackle the problem?**

The corridors and rooms, with clients and trolleys going constantly back and forth, are undoubtedly the noisiest areas in the hotel. When choosing the most appropriate solution for floor and wall coverings in the corridors and stairs of a hotel, you are almost "obliged" to use carpet or vinyl floorings, materials which are completely different in terms of sound absorbency, maintenance requirements and durability. In this particular case we opted for resilient materials because of their easier maintenance and durability, and also because there were very attractive materials available with a wood or marble effect finish. When we compared the various carpets and PVC flooring available on the market, the sound reduction for both materials was around 20 dB.

**When designing and constructing a hotel, one of the aspects often overlooked is precisely that of soundproofing, both in terms of separating the various rooms and in terms of the communal areas. Where and how did you intervene to overcome this problem?**

The problem of noise transmission, a factor which certainly

cannot be overlooked in a hotel, is one that has to be tackled every time you refurbish a structure that involves welcoming guests. In the guest rooms area, you usually install new floor coverings after laying an underfloor soundproofing mat, the doors and curtains are replaced and sound-absorbing false ceilings and dividing walls are installed (using plasterboard panels with lead sheets so that they absorb sound) between each guest room and between the corridors and the guest rooms. When building a new hotel, our preference is to construct 17 cm thick cavity plasterboard walls with insulating material in the gap. In the communal areas, we install sound-absorbing false ceilings, new curtains and walls or plasterboard panels lined with lead sheet.

**Did you also intervene to reduce the noise of footsteps through the floor or did you come up with a solution to soundproof the ceiling?**

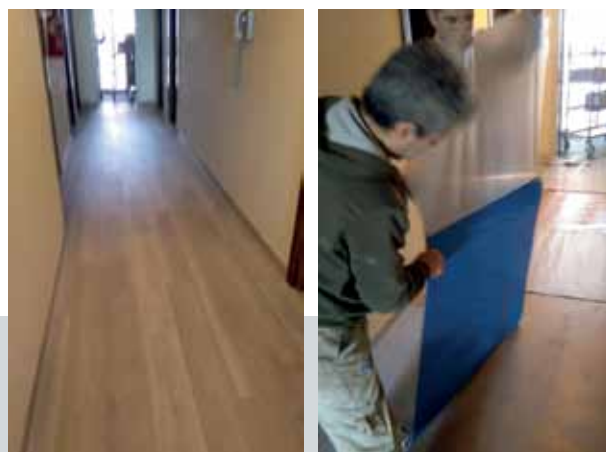
We worked to improve the living conditions of the entire hotel structure. When replacing the old floors, an underfloor sound-absorbing mat was included and soundproofed doors with REI characteristics were installed.

**The right soundproofing solution is not something anybody can design and install. Can you explain to us why you decided to opt for Mapei solutions?**

In terms of experience and capacity for innovative technology, the Mapei Group has always worked alongside engineers, including my Arkigeo and CMD Studio Line design studios. We particularly appreciate the professionalism, punctuality, rapidity, competence and professional approach of all the technical and commercial staff working in the Forlì-Cesena-Rimini-Ravenna area that, throughout all these years of collaborating together, have enabled us to offer decisive, cutting-edge solutions for all our needs regarding waterproofing, soundproofing, admixtures for cement and installation problems.

**Apart from their soundproofing properties, sound-absorbing mats and panels also provide excellent thermal insulation. When choosing this system, did you also take this aspect into consideration?**

Absolutely. When tackling a partial refurbishment project, such as this one, thermal insulation is taken into serious consideration, in terms of both comfort and potential energy savings. Towns and cities along the Adriatic coast have included volumetric and footprint incentives in their Health & Safety Coordination Plans for those who plan on upgrading their structures using defined eco-sustainable parameters.





# SOUNDPROOFING LEGAL REQUIREMENTS

LIVING COMFORT IN COMPLIANCE WITH CURRENT NORMS: WE DISCUSS THE TOPIC WITH AN EXPERT FROM MAPEI

**A residential building, or a building for office or hotel use, needs to have a well-defined insulation system to combat the noise of footsteps. How is this problem overcome to comply with the minimum requirements of current legislation?**

The transmission of noise from footsteps can be contrasted by laying sound-absorbent material, with the capacity to cushion the sound waves that are propagated, between the load-bearing structure of the floor and the floor covering.

In new buildings, the acoustic system is usually placed under the screed, which is also known as a "floating screed". This solution is the most widely adopted because it is easy to install, effective, economical and easy to design using special acoustic analysis software.

**Can you explain the importance of acoustic insulation in a building and the difference between soundproofing and sound-absorption?**

Soundproofing and sound-absorption are often thought to be synonymous, but in actual fact they express two completely different concepts. The aim of soundproofing is to reduce the transmission of noise propagated between two areas, such as a dividing wall between two adjacent rooms. The aim of sound-absorption, on the other hand, is to correct and control the propagation of sound that is reflected off the surfaces around a room in order to adapt it to specific requirements, such as in a concert hall, theatre or cinema.

**What is an acoustic bridge and how does it form? Does an acoustic bridge coincide with a thermal bridge?**

An acoustic bridge represents a preferential point for sound to travel through and tends to form in areas where there are gaps or breaks in the material applied to reduce the propagation of sound. An acoustic bridge does not necessarily coincide with a thermal bridge, even though both types of bridge tend to form where there is a break or gap in the geometry of a room (such as the corners between adjacent walls or between the floor and walls or windows). The presence of an acoustic bridge considerably reduces the soundproofing performance of an acoustic system, with a serious risk of comprising its compliance with legal requirements.

**The acoustic performance of a building is becoming increasingly important in terms of its living comfort. What solutions does Mapei propose to achieve acoustic comfort?**

The MAPESILENT system is ideal for new office buildings as a way of quickly installing floating screeds easily and reliably which are perfectly insulated from the substrate and which meet legal requirements as far as noise from footsteps is concerned.

**Can Mapei solutions only be applied in newly-constructed buildings, or may they also be installed in existing buildings? Is the material chosen for the floor covering – wood, ceramic, vinyl – important when proposing a soundproofing solution?**

Even in the case of refurbishing an existing building, in which it is impossible or uneconomical to remove the old flooring and rebuild a new screed over an acoustic system, Mapei is able to offer specific

products. MAPESONIC CR is a compact soundproofing membrane which may be applied on top of existing cementitious substrates or over old flooring before installing ceramic, stone, laminated wood and resilient flooring. The flooring can also play a part in improving soundproofing against the noise of footsteps. Surfaces dressed with carpet, resilient material (such as rubber, PVC or linoleum) and wood have a positive effect on the reduction of impact noise transmission. However, no floor covering allows legal requirements to be met or has much of an effect on the reduction of sound transmission unless it is used in combination with an appropriate soundproofing system.

**Are soundproofing interventions on floors particularly complex and require specialised workers?**

All soundproofing systems for floors are simple and quick to install. It is very important, however, that the system is installed with great care and precision to prevent the formation of acoustic bridges that could compromise, either partially or completely, the benefits obtained from their use. And this is why it is always advisable to contact qualified companies.

**Are the soundproofing materials used in Mapei systems eco-compatible?**

Mapei has always been committed to the development of eco-sustainable building and invests 5% of its annual turnover in Research & Development. Also, their low content of volatile organic compounds, the use of recycled and recyclable raw materials and their extended life cycle, all help reduce the impact Mapei soundproofing systems have on the environment.

---

**Antonino Munafò.** Acoustic Insulation Line Specialist for Mapei SpA



# MAPEI:

## A SOLUTION FOR EVERY PROBLEM

MAPEI PROPOSES SOUNDPROOFING SYSTEMS AND PRODUCTS FOR NEW ARCHITECTURAL STRUCTURES AND EXISTING FLOORS WITH INTERVENTIONS THAT ARE NOT EXCESSIVELY INVASIVE

### SOUNDPROOFING FOR FLOORS

The best way to eliminate the noise of footsteps is to soundproof the floor. The system proposed by Mapei is to overlay certain elements of the old flooring before installing the new floor covering. The soundproofing membrane, the key feature of the system, is placed between two layers of adhesive, thereby enabling the new floor covering to be installed over the old flooring without dismantling the existing floor. With this system a room can be soundproofed without creating dust and without too much disruption.

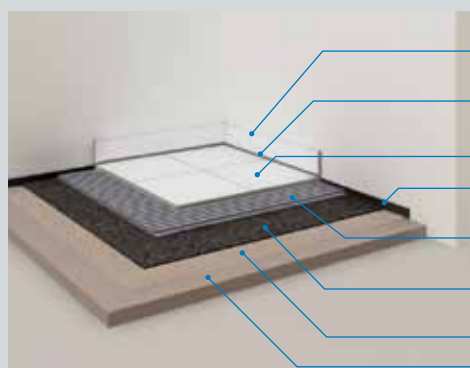
This system involves overlaying a soundproofing system over the old floor and requires the use of a series of prod-

ucts. The main product is MAPESONIC CR, a rubber and cork soundproofing mat in sheet form that is applied on the surface before installing ceramic, stone, resilient and laminated wooden flooring, as well as on heated floors. It is very thin (2 or 4 mm), which makes it ideal for renovation work, including where there is a limited amount of space available. MAPESONIC CR is recommended for upgrading internal areas in residential buildings, as well as for offices, medical structures, hotels and schools. It also has very low emission of volatile organic compounds (EMICODE EC1 Plus), complies with European standards covering the quality of internal environments and helps earn award points for LEED certification.

### SOUNDPROOFING FOR FLOOR SLABS

If the building is newly constructed, or if it is possible to completely reinstall the flooring and the underlying screed, the most suitable product is MAPESILENT. This modular membrane system enables floating screeds which are perfectly isolated from the substrate to be installed both simply and reliably and which meet current legal requirements. It is very easy to install a floating screed: all you need to do is install a layer of elastic material between the screed and the floor slab. To get the best out of the

#### Under-floor soundproofing



- Skirting board
- Sealant: **Mapesil AC**
- Floor covering: ceramic tiles
- Mapesonic Strip**
- Adhesive: **Kerabond/Kerabond T + Isolastic**
- Soundproofing layer: **Mapesonic CR**
- Adhesive: **Ultrabond Eco V4SP**
- Screed



soundproofing properties of the entire system, it must be installed very carefully and accurately.

It is particularly important to prevent the screed coming into contact with the lateral structures of the room or with any other element, such as pillars or drainage pipes. It is also important that these elements do not interrupt the material in any point, otherwise acoustic bridges may form.

## MAPEFLOOR COMFORT SYSTEM

The new seamless flooring solution from Mapei combines a high level of comfort underfoot with excellent soundproofing capabilities, reducing the transmission of impact noise.

MAPEFLOOR COMFORT SYSTEM is characterized by an attractive seamless finish, with no joints or interruptions in the floor covering. MAPEFLOOR COMFORT SYSTEM is also UV-resistant, easy to clean, with very low emissions of volatile organic compounds (VOCs) in internal environments.

These characteristics make the flooring solution ideal for offices, shops, schools, medical centres and libraries, where a high level of under floor comfort is required. This is provided from the matting at the base of the system which also has excellent soundproofing capabilities and reduces the transmission of impact noise.

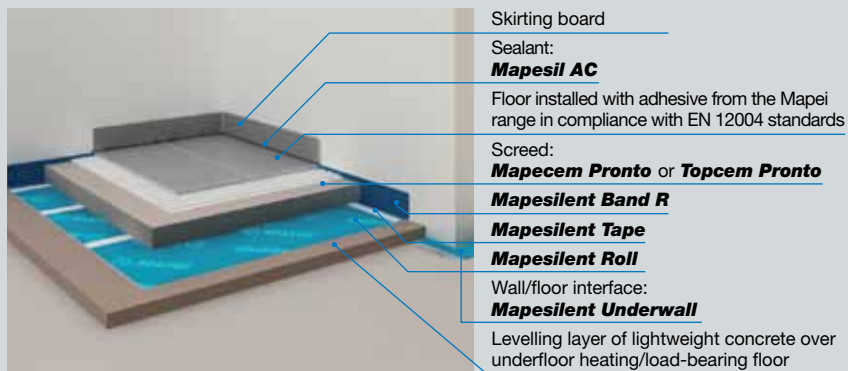
MAPEFLOOR COMFORT SYSTEM system is available in 4 different versions (2-6 mm thicknesses) in a wide chromatic variety of colours. Easy to install, MAPEFLOOR COMFORT SYSTEM is suitable for new buildings and refurbishment projects.

Self-levelling, elastic, UV-resistant, aliphatic polyurethane-based resin for floorings in civil environments.

*Mapefloor Comfort System AL:* 2 mm thickness; products to be used: PRIMER SN, QUARTZ 0.5, MAPEFLOOR PU 461, MAPEFLOOR FINISH 58 W.

*Mapefloor Comfort System AL/X:* 6 mm thickness; products to be used: MAPEFLOOR PORE FILLER, MAPECOMFORT (flexible rubber matting

### Soundproofing with floating screeds



made from granules of recycled rubber), MAPEFLOOR PU 461, MAPEFLOOR FINISH 58 W.

Self-levelling, elastic, UV-resistant, aromatic polyurethane-based resin for floorings in internal environments.

*Mapefloor Comfort System AR:* 2 mm thickness; products to be used: PRIM-

ER SN, QUARTZ 0.5, MAPEFLOOR PU 460, MAPEFLOOR FINISH 58 W.

*Mapefloor Comfort System AR/X:* 6 mm thickness; products to be used: MAPEFLOOR PORE FILLER, MAPECOMFORT (flexible rubber matting made from granules of recycled rubber), MAPEFLOOR PU 460, MAPEFLOOR FINISH 58 W.





# UNITED ARAB EMIRATES HELD ITS 1<sup>ST</sup> SPORTS TOURNAMENTS

## MAPEI LED INDUSTRY PLAYERS FROM CONSTRUCTION SITES TO THE FOOTBALL FIELD



**UPWARD.** Mapei's smallest cheerleaders came to support the MAPEI Dubai & Doha teams.

**ABOVE.** Adriano Ferrari, Regional Financial Director - Mapei, playing with his son while waiting for the tournament to begin.

With a notable objective of strengthening the existing ties and relationships within the industrial and construction community in the United Arab Emirates, Mapei Construction Chemicals LLC, the local subsidiary of the Mapei Group in UAE organized a truly enjoyable sports tournament for their customers. In February, 2017 they held the first annual Football Tournament at Sportsmania, Jumeirah Lake Towers. The tournament was successful in creating a sense of fellowship between the attendees and concluded with the announcement of the three winning teams: Ready Mix Beton in first place, Al Falah Ready Mix in second, and Consolidated Construction Company (CCC) in third.

The tournament saw thirteen 5-a-side teams competing against each other. Al Falah Ready Mix, Ready Mix Beton, Danube, Isam Kabanni, Trojan, Beirut Building Materials (BBM), Emirates Marble, Alec, CCC, JK White Cement, Floorworld, MAPEI Doha and MAPEI

Construction Chemicals LLC pulled together their corporate teams and had their employees transformed into football players for one afternoon.

Guests and competing teams enjoyed the opportunity to watch and participate in live sport matches with the spirit of promoting the importance of sports in the local community. The overwhelming interest in the tournament already cemented the initiative within the construction field and all the registered participants were in attendance and talk of next year's event is already in the air.

After the success of the football tournament, in March 2017, Dubai's subsidiary was eager to organize its 1<sup>st</sup> Cricket Tournament which saw eleven teams competing against each other.

The performing of all groups in both sports tournament were excellent and the audience turnout was unbelievable. Hard work and passion are the company's main values and so is for any sports professional or enthusiast. The popularity of these tournaments is no

## 11 TEAMS FOR DUBAI'S 1<sup>ST</sup> CRICKET TOURNAMENT

After the success of the football tournament, in March 2017, MAPEI Construction Chemicals LLC were eager to organize its 1<sup>st</sup> Cricket Tournament which saw eleven teams competing against each other. Al Shirawi, Structural, Alec (2 Teams: Warriors & Syndicate), Perfect Finish Coatings, Walls and Floors, Water Seal (2 teams), Isam Kabbani, Plafond and MAPEI Construction Chemicals pulled together their corporate teams and had an evening of fun and laughter which concluded with the announcement of the three winning teams: Alec Warriors in first place, MAPEI in second place, and Al Shirawi in third place.





# FOOTBALL TOURNAMENT 2017



**ABOVE.** Group picture of all the football players.

**BELOW.** Three Winning Teams of Football Tournament.

surprise, as MAPEI has had an unparalleled reputation for its involvement in the world of sport. Not only by providing cutting-edge materials and technologies to build sports facilities, but also for sponsoring the Union Cyclist Internationale (UCI), to their sponsorship of the Italian professional Football team U.S. Sassuolo Calcio, currently playing in Italy's Serie A, and finally, establishing the MAPEI Sport Center in Italy. This facility, born in 1996 and devised by MAPEI's CEO Giorgio Squinzi, was created to give strong support to athletes in training, using technical, scientific and ethical approaches. Recently, the facility expanded its action field to also focus on cycling, basketball, golf, and ski, amongst other sports. The main objective of the Center's team of experts is to assist and support the athletes, ensure that they reach their best shape, and to increase their skills and abilities, all while developing a strong sports culture based on ethics and integrity.



**Mapei Construction Chemicals LLC**, was established in United Arab Emirates in 2007 as a subsidiary of the Mapei Group and manufacturer of chemical products for the construction industry at its 40,000 square meter facility at Dubai Investments Park. MAPEI has been involved over the years in several high-profile projects in the UAE such as Burj Khalifa, Dubai Metro, Armani Hotel, Viceroy Hotel, Bollywood Park, Burj Al Arab Hotel, Atlantis Hotel and much more.



Group picture of all the cricket players.



Teams showed their skills & all played with great sportsmanship.



**LEFT.** Renzo Piano and Gino Strada lay the first stone of Emergency's new hospital for paediatric surgery overlooking Lake Victoria in Entebbe, Uganda.

On the 10<sup>th</sup> of February in Entebbe, Uganda, Gino Strada and Renzo Piano, along with the President of the Republic of Uganda, Yoweri Museveni, and the Minister for Health, Jane Ruth Aceng, laid the first stone of Emergency's new project: a Centre of excellence in Paediatric Surgery that will be built next to Lake Victoria, 35 km from the capital Kampala. Mapei will also play an active role in this important project and two of the company's highly qualified engineers, Elisa Portigliatti and Marco Cattuzzo, were also present at the inauguration ceremony.

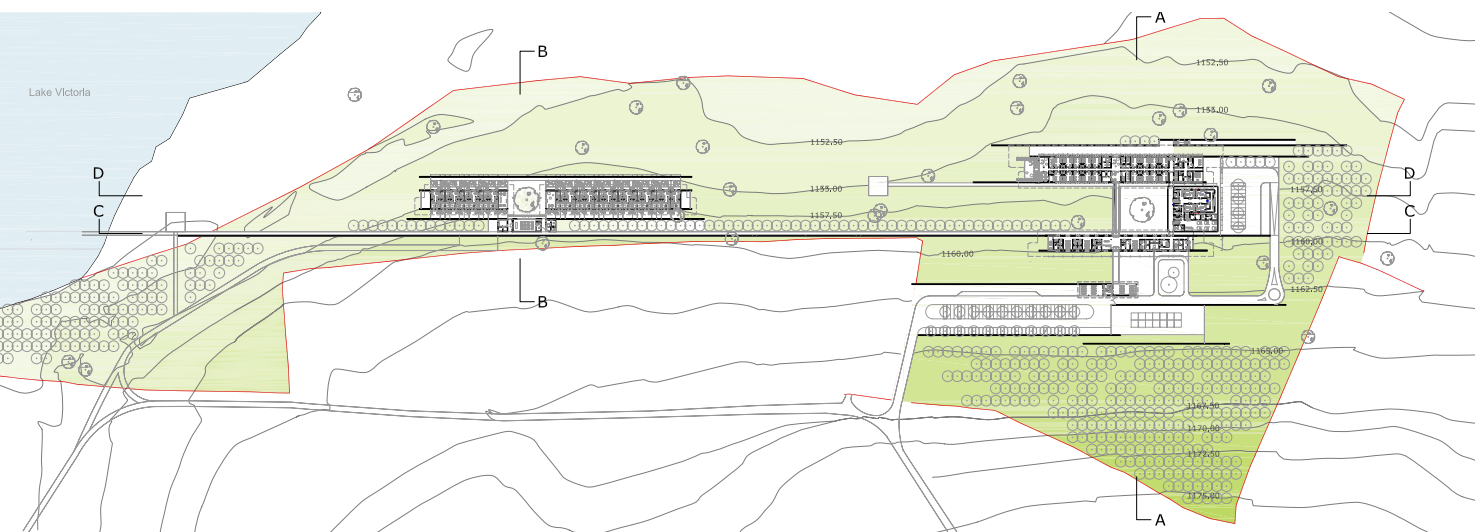
The need for a centre specialised in Paediatric Surgery, to serve Uganda and nearby countries, was highlighted by the African Ministers for Health from the member states of the

ANME (the African Network of Medical Excellence), created thanks to an Emergency initiative in 2009 with the aim of developing health systems and networks in member states to bring free health care of excellence to Africa, a concrete way of declaring every person's right to receive free health care of the highest order.

The hospital in Entebbe will be the second Centre of excellence in the network, following the opening of the Salam Centre for Cardiac Surgery in Khartoum, Sudan. In Uganda the infant mortality amongst the under-fives is 138 deaths for every thousand births. To guarantee free surgery in such a context is of absolute priority in order to help lower the infant mortality rate in Uganda and the

# MAPEI WITH RENZO PIANO AND EMERGENCY IN UGANDA

MAPEI: PARTNERS IN A PAEDIATRIC SURGERY PROJECT AS PART OF THE DEVELOPMENT OF A HEALTH NETWORK OF EXCELLENCE IN AFRICA



**ABOVE.** The general layout of the complex.



surrounding countries.

"Millions of children die every year simply because they have no access to medical care. A lack of resources? Too little concern for the suffering of part of the population? A lack of responsibility from the governments? Whatever the reason, the question is always the same: should we just carry on tolerating this scandal, or should we make every effort possible to save, or improve, the lives of millions of human beings?" explained Gino Strada. The Ugandan government decided to take an active part in the project by donating the plot of land where the centre

is to be built.

Renzo Piano Building Workshop designed the hospital in collaboration with Tamassociati, structural design was carried out by Milan Ingegneria and the plant layout and systems were designed by Prisma Engineering.

"When Gino Strada asked me to take part in Emergency's new challenge I didn't have to think twice; I said yes straight away! This hospital will be a model for medical excellence, environmental sustainability, independence from external energy supplies and the harmonious distribution of space".



#### TO THE LEFT.

Renzo Piano with the President of the Republic of Uganda, Yoweri Museveni, during the ceremony to mark the laying of the first stone of the new hospital for paediatric surgery.

#### A MODEL FOR MEDICAL EXCELLENCE

The hospital will have 3 operating theatres and 78 beds and will also act as a training centre for young doctors and nurses. It will be made up of three buildings parallel to each other with large, flat roofs, the key elements of the project. The first one, a single-storey building and the smallest of the three, will be used as a welcome area. The others will have two storeys and will run alongside the courtyard, with operating theatres and intensive care units at basement level. The central courtyard will have a garden overlooked by corridors and rooms and will be enclosed on the western side by a building with the living quarters for the hospital staff.

The hospital will be built using the traditional pisé technique (rammed earth technique): a mixture of soil, sand, gravel and water rammed into wooden formwork, but in this case combined with binders of the latest generation, developed by Mapei, to make the structure more stable, safer and more durable. The large flat roofs, made from wooden beams and steel tie-rods, will protect the hospital from bad weather and the beating sun and will be used to support

#### THE HISTORY OF EMERGENCY

Emergency is a humanitarian association founded in Milan in 1994 and its mission is to bring help to civilian victims of war and poverty.

Since 1994 until today Emergency has intervened in 17 countries, building hospitals, operating theatres, rehabilitation centres, paediatric centres, first-aid units, health centres, a maternity centre and a heart-surgery centre. Following requests received from local authorities and other organisations, Emergency has also contributed to the refurbishment and supply of vital equipment for existing health centres. Since 1994, teams of Emergency personnel have brought help to more than 8 million people.

And it is because they understand the effects of war that, since it was first formed, Emergency has always been committed to promoting peace.

In 2008, along with several African countries, Emergency drew up their Manifesto for a medical system based on human rights to vindicate health care based on equality, quality and social responsibility. In September, 2010 Emergency published a document entitled "The world we want" as a way of sharing the ideas and values that inspire their work.

Emergency became a legally recognised NPO in 1998 and NGO in 1999. Since 2006, Emergency has been officially recognised as an NGO partner by the United Nations – Department of Public Information. Since 2015 it has been a member of *Economic and Social Council as an association with Special Consultative Status*.



**EMERGENCY**  
Life Support for Civilian War Victims



5,000 m<sup>2</sup> of photovoltaic panels supplied by Enel Green Power.

"We will be using the earth's natural resources, water and sunlight, the ultimate goal of modernity" declared Piano. "Built on the banks of Lake Victoria, the centre will be surrounded by nature and woodland. The vegetation will form a horizon for the younger guests and the trees will be like a metaphor of the process of recovery".

#### MAPEI'S CONTRIBUTION: THE FRUIT OF RESEARCH

After more than 3 years of research work at the Corporate R&D laboratory in Milan, Mapei now has an innovative system available for Emergency, the team of designers from the RPBW (Renzo Piano Building Workshop) studio and the main contractors for them to build the new hospital structure using the pisé technique. This construction method, which is widely used all around the world, is an antique tradition based on compacting layer upon layer of locally-sourced soil in structures similar to formwork.

The development of the latest generation of binders, specifically formulated by Mapei Research, has allowed this centuries-old tradition to become more versatile and durable and, thanks to new innovations in the field of chemical products for the building industry, it is taking up a new role in major projects of today.

This intervention is part of Mapei's strategy to support projects based on solidarity and social responsibility by offering the company's technology and assistance from laboratory technicians, to help with research into innovative products that reflect the philosophy of the projects, and site engineers and technicians, to provide on-site assistance during the actual construction work.

Site preparation work has already commenced in a structure rented by Emergency in Maranello (Italy). Here, a life-size mock-up will be built (a wall more than 9 metres long), a kind of draft proposal of their "method statement" and a quality-control model to perfect construction work using the pisé technique. This will be an important preliminary phase for Mapei's Corporate R&D Laboratory and Technical Services-Major Projects Division and it will help them acquire all the useful information they will need to help organise the support work in Uganda during construction work.

**ABOVE.** The full-scale model of a wall of the building that has been built in Entebbe using the pisé technique.

**TO THE LEFT AND BELOW.** Scenes of the ceremony to mark the laying of the first stone.

#### TECHNICAL DATA

**Emergency Children's Surgery Center, Entebbe (Uganda)**

**Client:** Emergency

**Architectural Design:** Renzo Piano Building Workshop Architects in collaboration with Studio Tamassociati

**Project Team:** G. Grandi, P. Carrera, A. Peschiera, D. Piano, Z. Sawaya and D. Ardant; F. Cappellini, I. Corsaro, D. Lange and F. Terranova

**Structural Design:** Milan Ingegneria

**Plant Systems Design:** Prisma Engineering

**Landscape Design:** Franco and Simona Giorgetta

**Partners and Sponsors:** Ministry of Health of Uganda, Prosolidar Foundation, Renzo Piano Building Workshop, Studio Tamassociati, Milan Ingegneria, Agatos Energia, Duferdofin Nucor, Elettronica Santerno, Enel Green Power, Mapei Spa, Casalgrande Padana, Promozione Acciaio Foundation, Giugliano metal constructions, iGuzzini, Maspero Elevatori, Perin, Stahlbau Pichler, Vimar, Zintec, Salini-Impregilo and Terni Energia.

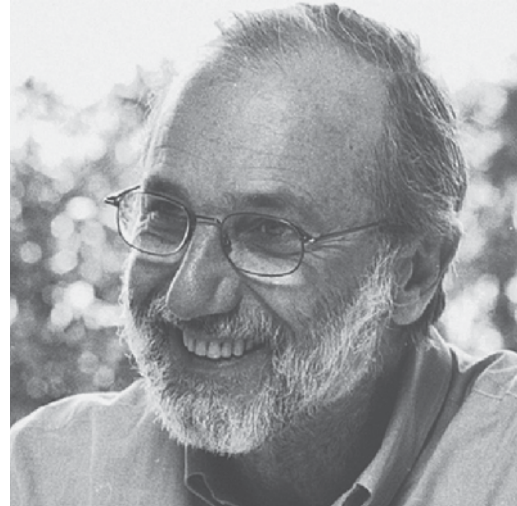






# A hospital of excellence

and training centre in a building constructed with respect for local traditions



**ON THIS PAGE.** The architect Renzo Piano who, along with his Renzo Piano Building Workshop, is designing the new hospital in Entebbe.

## THE PROJECT

Built in Entebbe, on the banks of Lake Victoria around 35 km from the city of Kampala, Emergency's new Paediatric Hospital will not only be a hospital structure of excellence, it will also be a place that enriches the entire area. Apart from providing invaluable medical services for the local population, it will also be a training centre for doctors and nurses who, thanks to this opportunity to follow highly specialised courses directly in the hospital, will no longer have to leave their homes or go abroad to specialise. The paediatric centre will give medical and paramedic staff the possibility to treat and operate on patients using equipment and instruments comparable to those found in the most advanced structures in the western world. The building is impressive for its functional layout, attention to its surroundings and energy efficiency and the use of local resources and building techniques, and aims at becoming a model of architecture for the entire region.

The complex will be built in a large park following the natural formation of the ground, which slopes gently towards the lake, and will be divided into three parallel wings.

The first wing, a single-storey building and the smallest of the three, will form the entrance and welcome area to the hospital. The other two wings will be larger, with a ground floor and a basement, and will be next to the main block which will be home for the operating theatres and the intensive care unit.

The south wing will house the doctors' studios, the pharmacy and the departments where clinical exams will be performed. On the ground floor of the north wing there will be rooms for

the patients, as well as two recreation rooms and areas where the children can meet and play together, while in the basement there will be classrooms to train the medical personnel, the administration offices and the canteen.

When designing the hospital a lot of thought went into the internal garden, at the centre of which there will be a large tree. Footpaths will run through the garden and it will be overlooked by the corridors and rooms used by the patients, illuminated by the natural light entering through ceiling-high windows.

The hospital complex will have an autonomous electrical energy supply: the roof will be made up of a suspended, load-bearing framework that will be used to support 5,000 m<sup>2</sup> of photovoltaic panels donated by Enel Greenpower, with the capacity to generate 400 kW of energy. And to finish it all off: a large curtain, the distinctive symbol of the structure, will protect the spaces and help keep them cool.

## THE PISE TECHNIQUE AND MAPEI INTERVENTION

Natural soil is one of the most antique construction materials used in many parts of the world, from Africa to Central and Latin America and from Asia to Oceania. Rather than using materials and construction techniques unfamiliar to the local culture, Renzo Piano Building Workshop chose to construct the hospital according to local traditions, privileging the use of natural soil and the pisé technique.

This technique uses a compound of soil, sand, gravel and a little water which is then pressed into wooden formwork using special tools. Even though the soil guarantees a level of thermal inertia that helps maintain the temperature and level of humidity in the building constant, it is not particularly strong and is not very resistant to rain.

To overcome these problems tests were carried out on samples of soil sent from Entebbe to the R&D Laboratory in Milan. The laboratory tests used innovative chemical binders that improve the mechanical strength of the compound and the resistance of its surface. These technical improvements were applied to the construction materials used on site to build a portion of wall which was then closely monitored. Various minerals and oxides were added to the soil mixture to make areas of wall in different colours.



**Renzo Piano Building Workshop**

# ART DÉCO

## Its “roaring years” in Italy

MAPEI IS PARTNERING A MAJOR EXHIBITION ON AN ART PHENOMENON THAT CONTRIBUTED TO THE EMERGENCE OF ITALIAN DESIGN AND SO-CALLED “MADE IN ITALY”

In accordance with its founder Rodolfo Squinzi's expressed belief that “work can never be separated from art and passion”, for many years now Mapei has been supporting important projects in the realms of art and culture.

So, following this general policy, Mapei has decided to support an exhibition entitled “Art Deco. The roaring years in Italy” - scheduled to be held in the San Domenico Museums in Forlì from 11<sup>th</sup> February-18<sup>th</sup> June - organised by the Cassa dei Risparmi Foundation in Forlì in partnership with Forlì City Council.

After already being a partner in an exhibition entitled “Piero della Francesca. Investigation of a legend” held at the same location in 2016, Mapei is proudly taking part in an event whose various aims include helping children in need.

Part of the money coming from ticket sales for the exhibition will be donated to Mediafriends by the Cassa dei Risparmi Foundation in Forlì to support projects

organised by the “Fabbrica del Sorriso” support research, prevention and care for children with tumours. Mapei has recently reasserted its commitment to social responsibility projects in Forlì by sponsoring the “Cresco Award for Sustainable Cities” promoted by the Sodalitas Foundation and ANCI. This project rewarded the most sustainable towns and cities with the backing and support of leading companies in their sector, including Mapei. On that occasion, the award-winning from Forlì was “Regenerating the old Courier Warehouse”, which Mapei supported by supplying products and expert technical consultancy.

### THE TRANSIENT BUT EXPLOSIVE 1920s

Under the supervision of Gianfranco Brunelli and a scientific committee headed by Antonio Paolucci, “Art Deco. The roaring years in Italy” features 440 artworks, providing an overview of a style embodied in art and artistic craft that had a major influence on life and culture, film, music, theatre and literature. This is the first Italian exhibition to focus mainly on Italian works showing the link - on a high-quality profile - between the decorative arts, architecture, painting and sculpture.

A sense of taste, peculiar charm and stylistic idiom that characterised Italian and European art in the 1920s







**OPPOSITE PAGE.** Two pictures from the opening ceremony. As well as the Mayor of Forlì, Davide Drei, it was attended by the Head of the Scientific Committee, Antonio Paolucci, the Managing Director, Gianfranco Brunelli, Roberto Pinza from the Cassa dei Risparmi di Forlì Foundation, and the curator, Valerio Terraroli.

**THIS PAGE.** Leopoldo Metlicovitz, Turandot, 1926, Colour lithography. Milan, Archivio Storico Ricordi.



**THESE PHOTOS.** The exhibition covered all the various aspects of Art Deco ranging from sculpture and ceramics to clothes and painting.

**TOP LEFT.** Gio Ponti, Gigi Supino, female bust, 1923, multi-coloured earthenware. Milan, Sforza Castle, Civic Collections of Applied Art.



before really coming to the fore in America after 1929. Everybody agrees that Art Deco might be described as an eclectic, high-society and international kind of

lifestyle. The success of this stylistic period came from focusing on luxury and a love of life (as intense as they were transient), brought to the fore by the European bourgeoisie after the Great War dissolved the last myths of the 19<sup>th</sup> century and mimesis of industrial reality and its manufacturing processes. Ten “roaring” years for the grand international bourgeoisie, while an unprecedented armed conflict between nations was approaching.

After an initial sense of continuity with the Liberty style that chronologically preceded it, Art Deco then moved beyond and even contrasted its predecessor. The difference between the idealism of Art Nouveau and the rationalism of Art Deco was quite substantial. The very idea of modernity, the industrial production of art works, and the concept of beauty in everyday life, changed radically: the raw drive of the historical avant-gardes and the industrial revolution replaced the myth of nature with the spirit of machinery, the geometric patterns of gears, the prismatic forms of skyscrapers and the city’s artificial lights.

#### **THE ROOTS OF ITALIAN DESIGN AND SO-CALLED “MADE IN ITALY”**

Art Deco was also the preferred style of cinemas, railway stations, theatres, ocean liners, public buildings and spacious middle-class residences: it was, above all, a clearly identifiable style that influenced the decorative arts on various levels, everything from furniture and ceramics to glass work, wrought iron, gold work, fabrics, fashion in the 1920s and early 1930s and even





**LEFT.** Gio Ponti, Casa degli Efebi, 1925, majolica. Sesto Fiorentino, Richard-Ginori della Manifattura di Doccia Museum.

**RIGHT.** Gio Ponti, Ciotola Emerenziana, 1927, majolica. Cerro di Laveno, private collection.

the design of motor cars, advertising posters, sculpture and decorative painting.

The exhibition mainly focuses on Italy, most notably the international biennials of the decorative arts held in Monza, a city in Northern Italy, in 1923, 1925, 1927 and 1930, as well, of course, as the Paris Expos of 1925 and 1930 and the 1929 Barcelona Expo. The Art Deco phenomenon was a roaring success right through the decade from 1919-1929 producing furniture, ceramics, glass and metal work, fabrics, bronzes, plasterwork, jewellery, silverware and clothing mirroring the raw energy of high-brow craftsmanship and proto-industrial production and contributing to the emergence of Italian design and manufacturing (so-called "Made in Italy").

The exhibition sets out to provide the public with an overview of the quality, originality and importance that the modern decorative arts have had on Italian artistic culture. It also aims to show how the distinctive traits of Art Deco have profoundly influenced and characterised the figurative arts: great painting and sculpture of

the highest quality.

It also had a major impact on and influenced film, theatre, literature, revues, fashion and music: from Hollywood (Lloyd Bacon's Parades and legendary divas like Greta Garbo, Marlene Dietrich and Rudolph Valentino) to such an unforgettable book as "The Great Gatsby" (1925) by Francis Scott Fitzgerald and the writings of Agatha Christie, Oscar Wilde and Gabriele D'Annunzio.



## SUPPORTING ART AND CULTURE IN THE BATTLE AGAINST TUMOURS IN YOUNG CHILDREN

Bearing in mind the importance of the event, the Cassa dei Risparmi di Forlì Foundation has decided to donate, for the second year running, part of the price of a ticket to the exhibition to the fundraising project that Mediafriends - through the Fabbrica del Sorriso project - is carrying out again in 2017 in favour of research into children's cancer.

This year's 14<sup>th</sup> edition of the Fabbrica del Sorriso project was widely publicised on the Italian TV Networks from 12<sup>th</sup>-26<sup>th</sup> March and from 15<sup>th</sup>-29<sup>th</sup> October, followed by a series of other events right through 2017. Thanks to the generosity of the Italian people, 2,915,000 euro was raised in 2016, but a lot still needs to be done to fight this terrible disease that refuses to spare even the very youngest children.

Mediafriends picked four associations and four major charity projects to help support research, hospital work and home help and improve the quality of life of very young patients: AIL (Italian Association for fighting Leukaemia, Lymphomas and Mieloma Onlus), AIRC (Italian Cancer Research Association), Meyer Onlus Paediatric Hospital Foundation (Paediatric Hospital in Florence) and Make-A-Wish Italia Onlus, an association that makes dreams come true for young children suffering from serious illnesses, so that they can enjoy a better life.

This exhibition is intended to combine the beauty of a highly prestigious art exhibition with vital healthcare, well aware that such a significant event as the exhibition in Forlì is an ideal way of both publicising a highly significant part of our culture and also informing the general public about scientific research aimed at saving lives, particularly those of young people and children.





# SASSUOLO

## A REASON TO BE PROUD OF

FRANCESCO ACERBI: "EUROPA LEAGUE AND THE CHAMPIONSHIP, WHAT AN EXCITING EXPERIENCE"

2016/17 was Sassuolo's 4<sup>th</sup> season in Serie A and the Mapei team ended the Championship in 12<sup>th</sup> place. In the 2015/16 Championship, the green and blacks ended the season to finish 6<sup>th</sup>, qualifying for a place in the Europa League. "The 2015-16 season – underlines Francesco Acerbi, their 29 year-old central defender – was extraordinary, but the one that just ended must also be considered an important achievement. We rounded it off with our heads held high".

**You started playing the preliminary games for the Europa League in July. Did this have an impact on how the season went?**

"Without a doubt. Ours is a young team and history shows that, for clubs that have to start their season early to play games in international competitions, winter and spring can prove to be particularly challenging periods. Some clubs have even been relegated to Serie B. We, on the other hand, following our fantastic experience in the Europa League, managed to confirm our place

long before the end of the season. With a little more luck we could even have finished in the top half of the table. The team has also had a series of injury setbacks that stopped us achieving even better results in the qualifying phase of the Europa League".

**During the 2016-17 season Sassuolo were often leading when the game reached the 18<sup>th</sup> minute. The other team then managed to draw level and, in some games, you were even beaten.**

"It was so disappointing to lose our advantage in the last few minutes, even against important teams. Maybe there was something not quite right with our mind-set, but don't forget that our opponents also have to take some of the credit".

**The Sassuolo team is dominated by home-grown players and, very often, you played against teams made up of 80-90% of foreign players. What does it feel like to be the flag-bearers of soccer**

**Made in Italy?**

"Now that the season is over our "Made in Italy" label is something we are very proud of, even though when you go onto the pitch you are not really thinking about the nationality of your opponents: during a game we try to get the best result possible".

**BERARDI BACK TO HIS GOAL-SCORING HABIT**

During the 2016-17 season, Domenico Berardi was not always a first choice player due to injury problems. He got back to his goal-scoring habits in the home game against Lazio, the 31<sup>st</sup> league match of the season. Unfortunately the side from Rome won that one 2-1. In the 25<sup>th</sup> minute Sassuolo capitalised on a moment of indecision by the Lazio defence. The Lazio goalkeeper, Strakosha, brought down Berardi in the area while he was trying to latch onto a through-ball from Missiroli and the referee awarded a penalty. And it was Berardi himself who took the penalty, wrong-footing Strakosha.



Sassuolo had more than one chance to double their lead, but it was a snaking run by Felipe Anderson, followed by a perfect pass, that set up Immobile to level the score in the 42<sup>nd</sup> minute. And then, in the 38<sup>th</sup> minute of the second half, an own-goal by Acerbi gave the victory to Lazio, infuriating the trainer Eusebio Di Francesco: “We didn’t deserve to lose – said Eusebio – we were just guilty of inexperience.”

Another game in which Sassuolo was caught out was the one against Atalanta the 31<sup>st</sup> of the Championship. “At Bergamo – continued Acerbi – we played one of our best games of the season”. In the 36<sup>th</sup> minute Pellegrini put Sassuolo into the lead and then, in the 73<sup>rd</sup> minute, Cristante equalised. “They were very determined and they wanted to qualify for the Europa League as soon as possible; they were also more on edge during the first part of the game. We seemed to have our minds more free. All in all, a one-one draw was a fair result”.

The following week, the green and blacks beat Sampdoria 2-1 at the Mapei Stadium. The Liguria team took the lead through Schick after 28 minutes. Sassuolo then started the second half with goals from Ragusa after 4 minutes and Acerbi after 11 minutes. “The goal by Samp – pointed out Francesco – kick-started the reaction of the team”. For Acerbi, scoring the winning goal was like a dream come true. “I often dream about playing up front during a game, being part of the attack”, admitted the defender born in Vizzolo Predabissi, just a few kilometres from Milano. The win against “Samp” was extremely important: we hadn’t won a home game for several months. We broke that run of bad luck and it was important for our self-confidence”. In the next home match against Napoli, the 33<sup>rd</sup> of the season, Sassuolo went back to their habit of losing a winning advantage. The second half was full of fireworks, with the Belgian star Mertens putting the Naples side in the lead after 7 minutes. Then, back-to-form Berardi, in the 14<sup>th</sup> minute, and the rising star Mazzitelli, in the 35<sup>th</sup> minute, put Sassuolo into the lead. In the 39<sup>th</sup> minute, however, a mixture of Sassuolo bad



**ON THE OPPOSITE PAGE.** Francesco Acerbi, the rock of the defence, in action during the Sassuolo-Napoli game.

**ABOVE.** A pass by Matteo Politano in the match between the green and blacks and Sampdoria and, to the right, the young Stefano Sensi in action during Sassuolo-Fiorentina.

luck and the grand class of Napoli decided the outcome of the game: 2-2 thanks to Milik.

### CLASS CAN PUNISH

“Napoli – declared Acerbi – plays the best football in Italy. We played a great match against the Naples team. In defence I had to juggle between Mertens and Hamsik, two highly skilful opponents. We were in the lead and Napoli managed to force a draw, but we have nothing to be ashamed of”.

Things went better in Tuscany the following week: Empoli 1 - Sassuolo 3. The green and blacks took the lead with a goal from the defender Peluso in the 19<sup>th</sup> minute, with Empoli levelling the score almost immediately with a goal from Pucciarelli. And then the Sassuolo show commenced. Matri in the 34<sup>th</sup> minute and, in the second half, Duncan in the 12<sup>th</sup> minute to earn the Mapei club three really important points. “At the Castellani Stadium – said Francesco – it was our desire to win that prevailed. We knew the Tuscany team needed points to stay up, but we were angrier”. Sassuolo has proven to be a real thorn in the side for Empoli this season; in fact, the Emilian team also beat the blue and whites in the Viareggio international youth team tournament.

Sassuolo had much less to celebrate after the next game, drawing 2-2 at the



Mapei Stadium against Fiorentina. The determined, effective play from Politano gave the team trained by Di Francesco the lead after 28 minutes, but the “purples” levelled the score after 37 minutes with a goal from Chiesa. Mounting pressure from the green and blacks in the second half resulted in them taking back the lead in the 40<sup>th</sup> minute, with a goal from lemmello. But then the old habits took over and, during added time in the 49<sup>th</sup> minute, Bernardeschi levelled the score, stunning the Mapei Stadium into silence.

“This was yet another niggling result. The game against the purples just about sums up our season”, admitted Acerbi. “We deserved to win the game but we allowed them to draw level in added time”. In the lunchtime match at San Siro, the 36<sup>th</sup> of the season, Sassuolo beat Inter Milan 2-1. The blue and blacks started the game well and put the Sassuolo defence under pressure. The Inter striker, Icardi, even hit the post when he was just 60 centimetres from goal. But from that moment on it was Sassuolo that dominated the game and for their new player, lemmello, the sky really was the limit. The striker from Foggia scored in the 36<sup>th</sup> minute. The reaction from Inter was quite



**TO THE RIGHT.** Pietro lemmello takes a shot at goal during the game against Cagliari at the Mapei Stadium.

tame and Iemmello added a second goal in the 5<sup>th</sup> minute of the second half. Inter brought on their “mystery man” Gabriel Barbosa and this switch helped liven up the match. Inter increased the pressure and, in the 25<sup>th</sup> minute, a goal from Eder rekindled the enthusiasm of their fans. Inter had their opponents camped in their own area for the last part of the game and, at the end, they had won 15 corner kicks against just 2 for Sassuolo. The game, however, finished 2-1 for Sassuolo. “We were good at remaining tight when things got tough – said Acerbi proudly – even towards the end, when Eder reduced our lead. We looked for the victory with more determination and, in the end, we were rewarded”.

For Iemmello the sky really was the limit: “Me, a fan of Inter Milan, and I scored two goals at the ground where my favourite team plays”. Iemmello has been playing for Sassuolo since the end of January 2017. For the second season running, the Mapei Group team has come off the Meazza pitch with a victory against the blue and blacks. During the 2015/16 season, Berardi scored a penalty in the 94<sup>th</sup> minute to give the Emilian team their 1-0 victory.

### LEADING GOAL SCORER

In the penultimate match, Sassuolo won 6-2 against Cagliari at the Mapei Stadium. For the team captain, Magnanelli, this match represented his return to the starting line-up after a long lay-off for injury. And it was “Magna” himself who gave the green and blacks the lead in the 7<sup>th</sup> minute. After just 13 minutes the score was already 3-0, thanks to further goals from Berardi and Politano. The timid reaction from the Sardinian team led to Sau scoring for them after 25 minutes. But the home team then became impossible to catch, with more goals from the midfielder Sensi (34 minutes) and Iemmello (11<sup>th</sup> minute of the second half). Before the end of the match there were two more goals; from Ionita for Cagliari in the 15<sup>th</sup> minute of the second half and from Matri in the 45<sup>th</sup> minute. “We wanted to thank our fans by scoring plenty of goals in our last match at the Mapei Stadium, and we did it”, was the unanimous comment from the green and blacks.

### CHAMPIONSHIP LEAGUE TABLE 2016/17

Juventus	91	Cagliari	47
Roma	87	Sassuolo	46
Napoli	86	Udinese	45
Atalanta	72	Chievo	43
Lazio	70	Bologna	41
Milan	63	Genoa	36
Inter	62	Crotone	34
Fiorentina	60	Empoli	32
Torino	53	Palermo	26
Sampdoria	48	Pescara	18

### DEFREL: AN ELECTRIC PERFORMANCE

Away with defensive play for a spectacular game: this was the recurrent theme of the last game in the Championship in Turin. The final score was 5-3 for the Bulls, even though the green and black striker, Gregoire Defrel, won the goal-scoring contest against the 100 Million Euros man, Belotti. Belotti scored one goal, Defrel scored 3.

The team trained by Sinisa Mihajlovic took the lead through Boyè after 6 minutes, but the talented Defrel levelled the score in the 14<sup>th</sup> minute. Baselli gave the Turin side the lead again in the 22<sup>nd</sup> minute and then, at the other end, De-

frel showed his worth in the 40<sup>th</sup> minute when he exploited a through ball from Politano to level the score. In added time of the first half, however, De Silvestri (46<sup>th</sup> minute) pierced the goal defended by Pegolo, first-choice keeper on this occasion for “Sasol”. Goals by Iago Falque (58<sup>th</sup> minute) and Belotti (79<sup>th</sup> minute) then built up a commanding lead that took Sassuolo even further from victory. A few sparks flew on the pitch when Acquah elbowed the Sassuolo captain Magnanelli and, from the spot, Defrel completed the first hat-trick of his career. And, following the customary shower, several key Sassuolo players were called up to be part of the Italian national squad.



**ABOVE.** Berardi congratulates Defrel for his hat-trick against the Bulls of Turin.

## SASSUOLO NEWS: CRISTIAN BUCCHI, COACH AND GOAL-SCORER, IS THE NEW MANAGER

THE NEW HEAD COACH WILL TAKE OVER FROM EUSEBIO DI FRANCESCO

Sassuolo has a new head coach: Cristian Bucchi, aged 40, born in Rome. The new manager will replace Eusebio Di Francesco, who has left the club owned by Mapei after five years in charge. “To replace Eusebio - so Giovanni Carnevali noted, the managing director and CEO of Sassuolo - we decided to look for a young coach willing to work in synergy with Mapei Sport. Somebody with strong ethical principles about sport, a long-term project, and the ability to make the team play attractive football: Bucchi meets all these demands”. This will be the first time the coach from the Lazio region has managed a Serie A team right from the start of the season.

Bucchi always played as a centre forward or, in any case, striker. His goal-scoring skills meant that he made his debut in Serie A playing for Perugia in 1998-99. It is worth mentioning that Christian was the leading goal-scorer in the Italian second division in the 2005-06 season playing for Modena. Bucchi began his career as a coach managing Pescara's youth team in the 2012-13 season. After a short spell coaching Pescara in Serie A, Cristian managed Gubbio and Maceratese in the Italian Pro League before taking Perugia to the play-offs for the Serie B in the 2016-2017 season. Cristian will be coaching Sassuolo in the Serie A right from the summer training camp and is determined to lead the black-and-greens to even more success. Best of luck!





# SASSUOLO LADIES ARE IN SERIE A!

## FABIANA COSTI: LEADING GOAL-SCORER IN ITALY

The Sassuolo Women's football team has done it: next season they will be playing in Serie A. The girls trained by Federica D'Astolfo came from behind to win the Serie B-Table B Championship. The target has been reached in record time: the ladies' team only joined the Mapei Group stable 10 months ago. Sassuolo started their collaboration with Reggiana Calcio Femminile, which had blue as the main colour for their playing kit. To honour the history of this all-women team from the "Città del tricolore", blue was also used for the team's first jersey. And blue is also the same colour used for the away strip worn by the men's team.

A champion of football and simplicity has led Sassuolo to winning their place in Serie A: Fabiana Costi, 30 years old. In just 26 games, the Sassuolo Women's striker hit the back of the net 41 times and was the league's leading goal-scorer. Also worthy of mention is the fact that Costi is the leading goal-scorer of both Serie B and Serie A. "I only scored one goal from a free-kick; all the other 40 were constructed through play – underlined Fabiana – which makes my record even more special". A lot of people call her a striker: "But really I am an attacking winger, the ladies' Berardi".

Fabiana Costi managed to score 4 times against Padova and has scored 5 hat-tricks in the Championship. The series of return matches started with Vittorio Veneto leading by two points. "When we started playing the return matches we were convinced that February would have been an important launch pad for the final run in – continued Ms. Costi – and this pushed us to concentrate so much. We managed to transform every match into a final, which is why we won so many games by so many goals". In the return match against Vittorio Veneto at the Barison Stadium, things could have gone better for Sassuolo. The final



**TOP RIGHT.** Fabiana Costi. **ABOVE.** Joining in the celebrations at the Mapei Stadium were Adriana Spazzoli (Mapei Group Operational Marketing and Communications Director) and Betty Vignotto (President of Sassuolo Women's Football Club).

score was 1-1, after Fabiana had put the Emilian side into the lead. "Sassuolo" played this match without some of their most important players: the centre-forward Gaia Mastrovincenzo (14 goals scored during the season), who was out for a recurring muscular problem, and Lara Barbieri, who was out with a damaged cruciate ligament. "Also – pointed out Costi – I was suffering from a viral infection. I scored the goal that gave us the lead and then we held onto this advantage until 10 minutes from the end. We were also in numerical advantage but, in spite of all this, we became distracted and the other side scored the equaliser. Maybe it was this numerical advantage that made us feel a little too confident and we allowed our concentration level to drop". But in the analysis after the big match, the Sassuolo ladies didn't allow their spirits to fall: "We still played really well away from home and, all in all, a final score of 1-1 was fair. Our performances and results gave us the push we needed to overtake Vittorio Veneto. When they drew the difficult game against Castelvetro, who were third in the league, we managed to catch them up". The final sprint for the Sassuolo ladies was really exciting. "The best game

I played in – said Fabiana – was the one we won 2-1 in the return series against Padova. In that game, as well as in the others, every girl from the Sassuolo team gave their all. A lot of the merit must also go to our trainer, D'Astolfo, who gave us the right preparation and instructions to help reduce any waste of energy and exalt all our individual qualities". Sassuolo completed "operation overtake" by winning 1-0 against Castelvetro: Giusy Faragò was the match-winner on the day "Vittorio" lost. For long periods during the season, Sassuolo played with Mastrovincenzo and Costi as strikers and Faragò in an attacking midfielder role. In the past, Fabiana had achieved a lot by playing in teams from large cities. "I consider this promotion to be one of the highlights of my career. The Sassuolo Women's team was founded thanks to their collaboration with Reggiana, which had a team in Serie A. And we have taken Reggio Emilia back into Serie A. Incorporating it with Sassuolo has proven to be extremely important: it has breathed new life into an area with a wealth of knowledge of ladies' football. And Sassuolo can play an important part role in making ladies' soccer even more popular. It is an honour to be a part of it".





# REPUTATION AWARDS 2017

MAPEI IS RANKED 29<sup>TH</sup> IN THE LIST OF COMPANIES WITH GOOD REPUTATIONS AND TOP OF ALL THE TRADING COMPANIES



THE RANKINGS OF THE 150 TOP-RATED COMPANIES IN ITALY IN TERMS OF REPUTATION.

Mapei is among the top thirty companies officially acknowledged as having an extremely highly-rated reputation according to the Reputation Awards, which are organised every year by the Reputation Institute in partnership with Ferpi and Iulm University. Also this year, Italy RepTrak 2017, the list of the 150 companies with the best reputations in Italy, was presented by the Reputation Institute, which has been organising data-driven consulting programme since 2006 to gauge the reputation of thousands of companies to improve their ROI in communication.

The Walt Disney Company has the highest reputation rating in Italy (84.7) with Ferrero (84.5) and Ferrari (84.2) taking up the other two places on the podium. In the top 20 positions, we also find Lavazza ranked sixth and Giorgio Armani ranked eleventh. It is no surprise to find Mapei in 29<sup>th</sup> position - the only Italian company

operating in the trade sector - ahead of Pirelli in 30<sup>th</sup> place, followed by Luxottica, Campari, Artsana and Ariston.

The Reputation Institute has gauged the reputation of 326 companies from 40 different countries and, in contrast with what happens in other leading European countries, where national enterprises are highly rated (for example, Michelin in France, Philips in the Netherlands and Lego in Denmark), foreign companies (72.8 points) have better reputations than our own firms (68.6), with only four Italian companies ranked in the top 20.

Nevertheless, the reputation of Italian companies rose (+1.2 points) in 2017. This figure - on the rise for the third year running - shows that our organisations have managed to regain the trust of the Italian people and, for the first time, now enjoy what is classed as a "strong" reputation with ratings from 70-79 points out

of 100. As Stefano Cini, the managing director of the Reputation Institute, pointed out, one of the false beliefs that need to be debunked is that there is no correlation between awareness and reputation: "In an age of major social changes, Italians think "who you are" is more important than "what you sell". 6% of your reputation depends on what people think of the company behind the project and only 34% on their opinion of the product/service being sold/provided. Most notably, the three aspects of Corporate Social Responsibility are increasing in importance: Governance - the transparency and ethical value of the business model Citizenship - social engagement - Workplace - the quality of the work environment".

And these are probably the decisive factors behind Mapei's well-earned success.



# WHICH ADHESIVE SHOULD I USE?

The second question implied by the one in the main title could also be: *Why are there so many adhesives available?* There are so many adhesives available due to technical and commercial reasons. However, from a technical point of view, the most suitable adhesive system should be chosen according to the installation conditions and requirements. Let's start by taking a look at how adhesives for ceramic materials are subdivided according to Euronorm EN 12004 and then go on to examine, in more detail, a typical application example.

## How are tiling adhesives classified (EN 12004)?

- According to the chemical nature of their binder:
  - C – cementitious adhesives
  - R – resin-based adhesives
  - D – ready-mixed water-based adhesives
- According to their performance characteristics:
  - class 1 with adhesion strength  $\geq 0.5 \text{ N/mm}^2$  (5 Kg/cm<sup>2</sup>)
  - class 2 with adhesion strength  $\geq 1 \text{ N/mm}^2$  (10 Kg/cm<sup>2</sup>)
  - F = rapid-setting\*\*
- Other characteristics (not mandatory)\*:
  - F = rapid-setting\*\*
  - E - extended open time
  - T = non-slip
  - S = deformability (only for cementitious adhesives)

\* See EN12004 - section 4: SPECIFICATIONS

\*\* Note: for rapid-setting adhesives this characteristic is mandatory where present

## Adhesive specification (Class according to EN 12004)

Area of use (see table 2)	Render specification (adhesion to substrate)	Tiles – Water absorption (According to UNI EN 14411) and length of longest side (cm)				
		AA $\leq$ 3% E AA $>$ 3%				
R4 – external wall S2 – external ceiling		$\leq 30$	$\leq 60$	$\leq 90$	$\leq 120$	$\geq 120$
Lime/cement render without heating system	$\geq 1 \text{ Nmm}^2$	C2	C2-C2S1/S2	C2-C2S1/S2	C2S1/S2	
Poured concrete		C2	C2-C2S1/S2	C2-C2S1/S2	C2S1/S2	



If we take the above into consideration, an adhesive classified according to EN 12004 standards as **C2 T E S1** is cement-based (C) with improved adhesion (2), is non-slip (T) with extended open time (E) and is deformable (S). These characteristics are easily recognisable, regardless of the product's trade name or the information given by the manufacturer or retailer, because they are supplied on the Technical Data Sheet and, often, on the packaging of the material.

Here are a few examples of products from the Mapei range: GRANIRAPID (C2FS1), KERABOND + ISOLASTIC (C2ES2), ULTRALITE S1 (C2TES1), KERALASTIC T (R2T), ULTRAMASTIC 3 (D2T), ELASTORAPID (C2TEFS2). Would we be able to identify the characteristics and performance of these adhesives just by reading their classification? What do they mean to us? Let's look at an example.

## APPLICATION EXAMPLE

Let's imagine we have to install ceramic tiles on the facade of a building, a system widely adopted in Italy. The tiles to be installed are 400 x 400 mm x 8 mm thick and will be bonded on render. Which adhesive should I use? I could rely on the experience I have built up over the years and choose an adhesive I already used in the past for similar work. Or, I could use an adhe-

sive recommended by a trusted retailer or by an expert who works in this particular sector. Even though their advice may be helpful, it is not always based on empirical data or on a sufficiently large number of similar examples. In this particular case, however, for example the Italian UNI 11493-1 regarding the installation of ceramic materials, and with specific reference to the EN 12004 classification system for adhesives, would guide the choice as indicated on the above table. It is quite clear that the successful installation of ceramic materials does not depend solely on the actual adhesive system; other factors need to be taken into consideration (the double-buttering method, adequate grout lines, UNI 11493 – Substrate preparation and characteristics). But during the design phase, or during the purchasing and application phases, the category of the most suitable adhesive required for that particular type of installation may be identified by a correct interpretation of the documentation available regarding adhesives. Having this knowledge reduces the risk of indecision or choosing the wrong product, safeguards consumers and improves the skill level of professionals operating in this sector.

**Marco Albelice.** Mapei SpA Technical Services Department.



2017 ROAD  
WORLD CHAMPIONSHIPS

BERGEN  
NORWAY



# RACE TO CELEBRATE

16-24 September 2017



MAIN SPONSORS



OFFICIAL SPONSORS



SHIMANO

Scandic

Sotra Kystby

fjordline.com

INSTITUTIONAL PARTNERS



OFFICIAL SUPPLIERS

Tacx

flex  
reklame as

Possibility



oktan:  
orangeriet

apility



Colonialen

